Natural Resources Canada

2015-16

Report on Plans and Priorities

The Honourable Greg Rickford, P.C., M.P.
Minister of Natural Resources

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Minister's Message

As Canada's Minister of Natural Resources, I am pleased to present the *2015–16 Report on Plans and Priorities* for Natural Resources Canada.

Natural Resources Canada plays an important role in advancing our government's priority of creating jobs and opportunities for Canadians. Canada's natural resource industries account for almost one-fifth of our GDP, provide 1.8 million jobs for Canadians and generate an average of $30 billion of government revenues per year to help pay for important programs like health care, education and infrastructure.

We stand at an important moment in the development of the global energy market. By 2035, global demand for energy will grow by one-third, with most of it coming from non-OECD countries. As a country with abundant supplies and expertise, Canada is well positioned to contribute to North American and global energy security as a reliable, secure and responsible source of energy.

Quite simply, our quality of life is directly tied to the responsible development of our natural resources. Through our plan for Responsible Resource Development, our government is taking key steps to diversify and expand our natural resource markets while improving environmental performance. We have made the review process for major resource projects more predictable and timely, creating certainty for resource industries and investors. We have taken concrete action and will continue to ensure world-class safety systems through strengthened pipeline, offshore and nuclear safety legislation.

Our government understands that the success of our natural resource sector depends upon meaningful and open dialogue with all Canadians and, in particular, productive engagement with Aboriginal communities that delivers results. We have taken practical steps to enhance engagement through, for example, the creation of our Major Projects Management Office-West, which serves as a single window to strengthen engagement with Aboriginal communities on the development of west coast energy infrastructure.

To increase Canada's competitiveness in global markets, our government will continue to support mining and forest sector innovation and transformation, energy efficiency and the development of clean energy technology. By applying geoscience expertise, we will provide public information on areas of high resource potential and evaluate natural hazards and options to mitigate the risks they pose to public safety.

I invite you to read this report to learn in detail about the initiatives that we are pursuing to help Canada lead the world in innovation, science and technology, and responsible development.

The Honourable Greg Rickford, P.C., M.P.

Minister of Natural Resources

Section I: Organizational Expenditure Overview

Organizational Profile

Minister: The Honourable Greg Rickford, P.C., M.P.

Deputy head: Bob Hamilton

Ministerial portfolio:

- Atomic Energy of Canada Limited[i] (AECL);
- National Energy Board[ii] (NEB);
- Canadian Nuclear Safety Commission[iii] (CNSC);
- Canada-Newfoundland and Labrador Offshore Petroleum Board[iv] (CNLOPB);
- Canada-Nova Scotia Offshore Petroleum Board[v] (CNSOPB);
- Northern Pipeline Agency[vi] (NPA);
- Sustainable Development Technology Canada[vii] (SDTC); and
- Energy Supplies Allocation Board (ESAB) (inactive).

Year established: 1994

Main legislative authorities:

- *Department of Natural Resources Act*[viii], S.C. 1994, c. 41
- *Forestry Act*[ix], R.S.C., 1985, c. F-30
- *Resources and Technical Surveys Act*[x], R.S.C., 1985, c. R-7

Organizational Context

Raison d'être

The vision of Natural Resources Canada (NRCan) is to improve the quality of life of Canadians by creating a sustainable resource advantage. It seeks to achieve this vision by working to improve the competitiveness of the natural resource sectors and to grow their contribution to Canada's economy. NRCan supports the responsible development of Canada's resources in a manner that advances the country's global standing as a leader on the environment, and uses its knowledge and expertise of Canada's landmass to support the safety and security of citizens.

Responsibilities

The Minister of Natural Resources has responsibilities under more than 30 acts of Parliament. The Minister's core powers, duties and functions are set forth in the *Department of Natural Resources Act*, the *Resources and Technical Surveys Act* and the *Forestry Act*. NRCan also works in areas of shared responsibilities with provinces.

To deliver on its responsibilities, NRCan relies on a number of instruments. It uses science and technology (S&T) to help address priorities and to plan for the future. It develops policies, programs, and regulations that help create a sustainable resource advantage, supporting strong, competitive natural resource sectors that are environmentally and socially responsible. And it uses partnerships and international collaboration to help drive progress on natural resource issues important to Canadians. More broadly, the Department plays a critical role in Canada's future, contributing to high-paying jobs, business investment and overall economic growth in Canada's natural resource sectors.

NRCan has offices and laboratories from coast to coast to coast. About half of its occupied facilities are in the National Capital Region, with the remainder being distributed from Atlantic Canada, through Quebec and Ontario, to the Western and Pacific Regions and northern Canada.

Strategic Outcomes and Program Alignment Architecture

Strategic Outcome 1: **Canada's Natural Resource Sectors are Globally Competitive**

Program 1.1: Market Access and Diversification

Sub-Program 1.1.1: Mineral and Metal Markets Access and Development

Sub-Program 1.1.2: Forest Products Market Access and Development

Sub-Program 1.1.3: Energy Market Regulation and Information

Program 1.2: Innovation for New Products and Processes

Sub-Program 1.2.1: Mining Innovation

Sub-Program 1.2.2: Forest Sector Innovation

Sub-Program 1.2.3: Geospatial Innovation

Program 1.3: Investment in Natural Resource Sectors

Sub-Program 1.3.1: Mineral Investment

Sub-Program 1.3.2: Targeted Geoscience Initiative (TGI)

Sub-program 1.3.3: Geo-Mapping for Energy and Minerals

Sub-program 1.3.4: New Energy Supply

Program 1.4: Statutory Programs – Atlantic Offshore

Strategic Outcome 2: Natural Resource Sectors and Consumers are Environmentally Responsible

Program 2.1: Energy-Efficient Practices and Lower-Carbon Energy Sources

Sub-Program 2.1.1: Renewable Energy Deployment

Sub-Program 2.1.2: Support for Clean Energy Decision-Making

Sub-Program 2.1.3: Alternative Transportation Fuels

Sub-Program 2.1.4: Energy Efficiency

Program 2.2: Technology Innovation

Sub-Program 2.2.1: Materials for Energy

Sub-Program 2.2.2: Green Mining

Sub-Program 2.2.3: Clean Energy Science and Technology

Program 2.3: Responsible Natural Resource Management

Sub-Program 2.3.1: Forest Ecosystem Science and Application

Sub-Program 2.3.2: Groundwater Geoscience

Sub-program 2.3.3: Environmental Studies and Assessments

Sub-program 2.3.4: Radioactive Waste Management

Sub-program 2.3.5: Earth Observation for Responsible Resource Development

Strategic Outcome 3: Canadians have Information to Manage their Lands and Natural Resources, and are Protected from Related Risks

Program 3.1: Protection for Canadians and Natural Resources

Sub-Program 3.1.1: Explosives Safety and Security

Sub-Program 3.1.2: Materials and Certification for Safety and Security

Sub-Program 3.1.3: Forest Disturbances Science and Application

Sub-Program 3.1.4: Climate Change Adaptation

Sub-Program 3.1.5: Geohazards and Public Safety

Program 3.2: Landmass Information

Sub-Program 3.2.1: Essential Geographic Information

Sub-Program 3.2.2: Canada's Legal Boundaries

Sub-Program 3.2.3: Polar Continental Shelf Logistics Support

Sub-Program 3.2.4: United Nations Convention on the Law of the Sea

Program 4.1: Internal Services

Organizational Priorities

NRCan has identified five priorities critical to meeting its strategic outcomes, thereby supporting the Government of Canada's priorities. These priorities have guided, and continue to guide, the delivery of results. NRCan's success in delivering on each priority will be assessed in the corresponding Departmental Performance Report.

Details on each of the priorities and the plans and commitments for achieving them are presented below.

Organizational Priorities

Priority	Type	Strategic Outcome
Expand markets and global partnerships	Previously Committed to	SO 1 Canada's Natural Resource Sectors are Globally Competitive SO 2 Natural Resource Sectors and Consumers are Environmentally Responsible
Description		
Why is this a priority? Market access for natural resource products and services generates significant benefits to Canadians. With slower-than-anticipated economic growth and increasing domestic supply of oil and gas in the United States together with high demand for natural resources in fast-growing economies in the Asia-Pacific region, Canada must focus on expanding and diversifying its markets, for example by supporting the expansion of energy infrastructure, and on positioning itself as a reliable and responsible supplier worldwide. **What are the plans for meeting this priority?** To support this priority, NRCan will focus on promoting Canada as a responsible supplier of natural resource products and services in both existing and emerging markets, including addressing market barriers. Partnerships with industry and other government departments will also be leveraged to contribute to the expansion of markets. NRCan will also continue its involvement in various international fora to exercise its leadership and promote Canada's natural resource interests. *Market Access and Diversification (Program 1.1)* NRCan will promote Canada globally as a reliable and responsible energy, forest product and mineral resource developer through international bilateral and multilateral engagement, advocacy and communications, by supporting government activities to develop trade and investment markets in the Asia-Pacific region (e.g., China, India, Korea). In partnership with Foreign Affairs, Trade and Development (DFATD), NRCan will lead Canada's contribution to the G7 energy initiatives to		

respond to regional energy security issues and the G20 energy-related initiatives leading up to Turkey's G20 Presidency in 2015. NRCan will build on Canada's renewed partnership with the United States, as strengthened through the 2014 signing of the Canada-US Memorandum of Understanding Concerning Cooperation on Energy. It will also aim to build the most competitive and dynamic energy region in the world through the Canada-US-Mexico Memorandum of Understanding (also signed in 2014).

Building on NRCan's efforts to promote Canada's interests, jobs and the economy, including successful efforts advocating for a more science- and fact-based approach to the European Union's recently passed Fuel Quality Directive, NRCan will continue to analyze and address market barriers for oil sands, shale gas and alternative fuels (e.g., ethanol, biodiesel, natural gas). This will be undertaken by monitoring developments on low-carbon fuel standards in the US and Europe, and by monitoring and developing Canada's position on shale gas and hydraulic fracturing. NRCan will also continue its policy analysis on market access issues, such as oil and gas pipelines, LNG export facilities, potential for penetration of Canadian oil and gas into new markets, and increased use of Canadian oil and gas to meet domestic energy needs.

In cooperation with domestic partners, NRCan will work to effectively engage communities on the development of energy infrastructure, including implementing the Government's response to the report of the Special Federal Representative on West Coast Energy Infrastructure. Through its Major Projects Management Office – West, NRCan will coordinate extensive engagement with First Nations to better understand their perspectives on issues related to energy projects, and work with other federal departments to identify concrete actions to address community interests and concerns.

In partnership with forest product associations and provincial governments, NRCan will support market development, market access and acceptance activities in both North American and offshore markets to expand opportunities for the export of Canada's forest products. The Department will provide financial contributions and science-based information to industry and international partners to support the development and dissemination of information products that promote the environmental reputation of Canada's forest sector in international markets.

The Department will ensure minerals, metals and mining interests, issues and perspectives are represented and given due consideration in the development of domestic and international trade policies and agreements. NRCan will continue to implement Canada's international obligations under the Kimberley Certification process.

Investment in Natural Resource Sectors (Program 1.3)

NRCan will promote Canadian best practices in responsible mineral resource governance and activities related to the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development and Corporate Social Responsibility.

Energy-Efficient Practices and Lower-Carbon Energy Sources (Program 2.1)

NRCan will advance Canada's energy and technology interests at environmental and climate-related international fora (e.g., United Nations Framework Convention on Climate Change, the North American Leaders Summit, and the Clean Energy Ministerial process), with the aim of helping to ensure that Canadian objectives are reflected in the outcomes of the discussions.

Building on the accomplishments of the Regulatory Cooperation Council, NRCan will continue to lead Canada's collaboration with the United States to modernize energy use and efficiency, which could include closer collaboration on harmonized energy efficiency performance standards and labelling. These actions along with other activities led by NRCan in favour of greater energy efficiency will position Canadian companies to be increasingly competitive in a multi-billion global market for energy fficient goods.

Priority	Type	Strategic Outcome
Unlock resource potential through responsible development	Previously Committed to	SO 1 Canada's Natural Resource Sectors are Globally Competitive SO 2 Natural Resource Sectors and Consumers are Environmentally Responsible SO 3 Canadians have Information to Manage their Lands and Natural Resources, and are Protected from Related Risks

Description

Why is this a priority?

The responsible development of Canada's natural resources is critical to our current and future prosperity. Over the next 10 years, planned investments could reach $675 billion in hundreds of major energy, mining and forest sector projects across all regions – spurring jobs, economic growth and significant tax revenue for public expenditures such as health care, education and infrastructure. Seizing this opportunity requires geoscience knowledge, investment, capital, energy and other infrastructure, an efficient and effective regulatory system, and meaningful consultation and engagement with Aboriginal people.

What are the plans for meeting this priority?

Efforts supporting this priority will focus on the provision of expertise as well as continuous improvements to the regulatory process and major project reviews. To realize economic opportunities, NRCan must put in place the necessary conditions to support responsible resource development, including developing geoscience knowledge, attracting investment and capital, and putting the appropriate infrastructure in place. It also requires an efficient and effective regulatory system. Targeted promotion efforts will also be undertaken to attract foreign direct investment and address market access issues.

Market Access and Diversification (Program 1.1)

NRCan will work to further enhance Canada's world-class safety systems for energy infrastructure, including for pipelines, offshore, and nuclear, and continue to support efforts related to marine and rail. For example, NRCan will continue to play a lead role in implementing the Government's plan for Responsible Resource Development. It will also build on partnerships with provinces and territories through venues such as the Energy and Mines Ministers Conference and the Canadian Council of Forest Ministers to identify areas for collaboration, oversee deliverables, and work on common messaging and cooperation in international arenas.

NRCan will establish a sound liability, legislative and regulatory regime by: (1) implementing the *Energy Safety and Security Act* and the *Pipeline Safety Act*, and developing supporting regulations; (2) developing Occupational Health and Safety regulations; (3) seeking National Energy Board (NEB) guidance on the application of "best available technology" to federally regulated pipelines; and (4) completing the entry into force of the *Nuclear Liability and Compensation Act*.

The Department will promote offshore oil and gas development through several actions, including finalizing the Canada-Quebec Offshore Accord legislation and updating rules and practices in the Atlantic offshore through the land tenure process.

Innovation for New Products and Processes (Program 1.2)

The Department will participate in the Federal Framework for Aboriginal Economic Development through its funding program, the Strategic Partnerships Initiative, by funding economic development projects related to land reclamation, integrated natural resource development, bioenergy, and tenure modernization.

Investment in Natural Resource Sectors (Program 1.3)

To attract investment in Canada's natural resources, NRCan will highlight Canada's positive investment climate. It will generate new geoscience maps and data sets to help industry to determine Canada's mineral and energy resource potential.

The Department will also collaborate with northern stakeholders, such as northern communities and institutions to engage and mobilize northerners and their institutions to maximize benefits for northerners from Geo-Mapping for Energy and Minerals (GEM) program activities and knowledge, and support evidence-based land use planning in Canada's North.

Energy-Efficient Practices and Lower-Carbon Energy Sources (Program 2.1)

NRCan will continue to monitor the Federal Loan Guarantee for the Lower Churchill Hydroelectricity Projects.

Responsible Natural Resource Development (Program 2.3)

NRCan will provide geoscience expertise to support environmental assessments under the *Canadian Environmental Assessment Act (2012)* and northern legislation and for Mineral and Energy Resource Assessment requirements.

A final technical report evaluating the use of Earth Observation technology in support of improved regulatory monitoring and environmental performance in the Alberta oil sands region will be delivered to provincial and federal regulators, and industry stakeholders.

Protection for Canadians and Natural Resources (Program 3.1)

NRCan will deliver public geoscience, tools, information and knowledge to federal and territorial governments to increase their understanding of changes to the climate and how they impact Northern infrastructure requirements and constraints, such as those imposed by changes to permafrost.

NRCan will conduct inspections on explosives safety and security, and aim to improve compliance as the new, modernized 2013 Explosives Regulations are being implemented.

Landmass Information (Program 3.2)

NRCan will continue to collaborate with the departments of Fisheries and Oceans, and Foreign Affairs, Trade and Development as well as with international partners to acquire and archive scientific data for successful completion of the second survey mission to the Arctic Ocean.

Internal Services (Program 4.1)

Further to the December 2014 passage of the *Extractive Sector Transparency Measures Act*, NRCan will play a leadership role internationally to deter corruption and to enhance transparency and accountability, delivering on the Prime Minister's commitment to implement mandatory reporting standards for the extractive sector beginning in June 2015.

Priority	Type	Strategic Outcome
Innovate for competitiveness and environmental performance	Previously Committed to	SO 1 Canada's Natural Resource Sectors are Globally Competitive SO 2 Natural Resource Sectors and Consumers are Environmentally Responsible

Description

Why is this a priority?

Innovation is critical to both resource sector competitiveness and improved environmental performance, contributing to increased productivity, lower costs, value-added and new products, and helping to meet environmental standards and regulations.

What are the plans for meeting this priority?

Commitments supporting this priority will focus on research, development and demonstration projects within government as well as in partnership with industry, academia, and other government departments to foster innovation in the natural resource sectors.

Market Access and Diversification (Program 1.1)

NRCan will finalize the implementation of a Government-owned, Contractor-operated model for Atomic Energy of Canada Limited's (AECL's) Nuclear Laboratories.

Innovation for New Products and Processes (Program 1.2)

Research, development and demonstration projects are key to showcasing innovation and reducing business risk.

NRCan will support the forest sector's efforts to expand opportunities in bioenergy, bio-products and next-generation building materials, and to add more value to its products. NRCan will work with the Forest Products Association of Canada and FPInnovations to develop and gain acceptance of the Forest Industry Innovation Framework, to catalyze and align forest sector innovation through the innovation system. Through the Forest Innovation Program and the Investments in Forest Industry Transformation Program, the department will continue to provide support for the research, development, testing and commercialization of technologies, processes, and products that enhance the competitiveness of Canada's forest sector.

NRCan will continue to work through the Federal Committee on Geomatics and Earth Observation to implement the Federal Geospatial Platform to ensure that the way the Government shares, uses and manages its location-based information is more efficient and effective for existing and new users.

Energy-Efficient Practices and Lower-Carbon Energy Sources (Program 2.1)

The Department will bolster industry capacity to produce renewable forms of energy by supporting the production of up to 15.7 terawatt-hours of clean electricity through its ecoENERGY for Renewable Power and Wind Power Production Incentive programs and by supporting Canada's alternative fuel production capacity for renewable alternatives to gasoline and diesel through its ecoENERGY for Biofuels program.

Through its ecoENERGY Efficiency program, NRCan will deliver energy efficiency programing that saves Canadian consumers and businesses 36-44 petajoules of energy and $1 billion per year in 2016, which is equivalent to the energy required by 330,000 to 410,000 households over one year (excluding transportation requirements). NRCan also aims to help Canadian businesses reduce their energy costs; improve industrial productivity and competitiveness; support energy market diversification with the promotion of products, services, and technologies; and build public confidence by improving environmental performance and reducing wasteful energy use. NRCan will facilitate the registration of 9,000 buildings in the ENERGY STAR Portfolio Manager Benchmarking tool; provide energy management workshop training to 1,550 industrial and building participants and provide training for 5,200 transportation professionals; facilitate the registration of 15,000 vehicles in the SmartWay Transport Partnership; and support 5 new companies to undertake the ISO50001 energy management standard.

Technology Innovation (Program 2.2)

To further support environmental performance, NRCan will implement clean energy technology projects with industry, academia and other government departments and agencies to research, develop and demonstrate innovative solutions to environmental challenges in the energy sector. This includes research activities that support the responsible development and use of energy resources in areas such as clean electricity and renewables, fossil fuels, and energy use.

Through the ecoENERGY Innovation Initiative, the Department will manage contribution agreements in energy research and development and demonstrations.

The Department will present to industry one advanced material technology to be identified for implementation in the design or processing components of energy efficient vehicles produced in North America.

NRCan will support responsible resource management by demonstrating key environmental technologies for green mining to industry and other stakeholders.

The department will improve the security of supply of medical isotopes by investing in the development of alternative technologies through the Isotope Technology Acceleration Program (ITAP), in support of the Government of Canada's medical isotope strategy to diversify sources of supply, minimize radioactive waste and eliminate the use of highly enriched uranium in the production of medical isotopes.

Priority	Type	Strategic Outcome
Leverage S&T knowledge for safety and security risk management	Previously Committed to	SO 2 Natural Resource Sectors and Consumers are Environmentally Responsible SO 3 Canadians have Information to Manage their Lands and Natural Resources, and are Protected from Related Risks

Description

Why is this a priority?

NRCan has an important role in preparing for and managing threats and emergencies associated with natural and man-made hazards, including earthquakes, forest fires and industrial incidents; as well as to manage radioactive waste. Furthermore, NRCan plays a key role in providing up-to-date information on our natural resources and landmass through Open Government, a whole-of-government initiative to ensure Canadians have easy access to the right information, in the right format, in a timely manner.

What are the plans for meeting this priority?

Key commitments that will support this priority will focus on interdepartmental emergency management, nuclear waste management, climate change adaptation and the dissemination of expertise to support the management of land boundaries and natural hazards (e.g., earthquakes, forest pests).

Responsible Natural Resource Development (Program 2.3)

To support nuclear waste management, the Department will complete the commissioning and continue operations of the new water treatment plants at the new Port Hope and Port Granby facilities and start construction for the new Long-Term Waste Management Facility for the Port Granby Project. The Department also expects to tender and issue a contract for construction of the Port Granby Long-Term Waste Management Facility.

Through the Nuclear Legacy Liabilities Program, NRCan will complete activities to support the transition of nuclear decommissioning and waste management responsibilities at the Nuclear Laboratories to the Government-owned, Contractor-operated management model.

Protection for Canadians and Natural Resources (Program 3.1)

NRCan will maintain the safety of the public and infrastructure by certifying, to a national standard, individual inspectors performing non-destructive testing (NDT).

The Department will advance the National Forest Pest Strategy of the Forest Pest Working Group of the Canadian Council of Forest Ministers by updating strategic S&T priorities for the next 5 years, NRCan will also contribute science to help slow the eastward spread of Mountain Pine Beetle and advance early intervention strategies for emerging outbreaks of spruce budworm in eastern Canada.In partnership with provincial and territorial governments, NRCan will develop and disseminate knowledge on a range of forest-related issues including, climate adaptation and wildland fires.

NRCan will collaborate in the interdepartmental Tsunami Notification Networking Group and in the multi-stakeholder Early Warning System Initiative to ensure that geohazards expertise, tools and resources (including seismic hazard models and methodologies, plate boundary-based research, post-event rupture mechanism assessment, and risk assessment tools) are made available to stakeholders.

Landmass Information (Program 3.2)

In support of Canada's coordinated efforts to respond to emergencies, NRCan will provide to emergency management organizations mapping products and services showing the extent of flooding in near real time; this information will be derived from geoprocessing of Radarsat-2 and ancillary information.

Priority	Type	Strategic Outcome
Increase the effectiveness and efficiency in NRCan operations	Previously Committed to	P 4.1 – Internal Services

Description

Why is this a priority?

NRCan strives to serve Canadians in the most effective and efficient manner possible, ensuring value for money and delivering results. To support a well-managed, high-performing department and to deliver internal services more efficiently, NRCan is transforming its business processes and use of technology.

What are the plans for meeting this priority?

NRCan will identify opportunities for the integration of requirements from Treasury Board's Open Government Directive – which aims to maximize the availability of government information and data – into NRCan's existing science and technology policies and reporting.

The Department will continue to deliver its Science Promotion Strategy, which aims to demonstrate the impact and benefit to Canadians of NRCan's science and research, and helps to increase the S&T literacy of Canadians. NRCan will expand the reach of its science by using partnerships and new media tools to deliver information on its science and research activities.

NRCan will assess its specific computing needs to support science, and will work to improve capabilities in partnership with Shared Services Canada, by leveraging high-performance computing infrastructure.

The Department will document and track NRCan's Signature S&T projects, including the introduction of a performance measurement framework to better assess and convey the relevance, quality and impact of the Department's S&T expertise.

NRCan will continue to champion the Blueprint 2020 vision through a broad range of initiatives aimed at advancing a whole-of-government approach and a modern, networked, responsive Public Service.

NRCan will also continue to implement the Government of Canada's Web Renewal Initiative in accordance with direction from the Treasury Board Secretariat.

As the department continues to implement key government-wide initiatives such as the Performance Management program for employees and GCDOCS, it will focus its first full year post implementation on change management and improving performance.

The Department will also analyze re-accommodation options for program activities currently housed at the Booth Street Complex, as well as Earth Materials Collections housed at Tunney's Pasture.

The Department will revisit its building emergency procedures, and enhance physical security to better protect its employees and assets.

NRCan will review and implement a new IT governance structure to ensure the protection and security of the Department's IT assets against a rapidly evolving cyber threat environment. NRCan will enhance its cyber security technologies, working closely with Shared Services Canada and other partners.

Risk Analysis

Canada's natural resource sectors currently support 1.8 million jobs, account for almost 20% of our GDP and provide approximately $32 billion in tax revenues, which help support other government programs.

The Department recognizes that a solid understanding of the risk environment is fundamental to achieving its Strategic Outcomes. Its most predominant risks, namely those that have influenced the establishment of NRCan's Organizational Priorities, are described below.

Market Access and Investment Climate Canada has vast energy, mineral and forest resources; however, realization of Canada's resource potential is not guaranteed. With a resource supply far outpacing domestic demand and with the demand from the US for oil and gas set to decline, Canada must ensure that it can access new and existing foreign markets and maintain an appropriate investment climate in resource development if it is to maintain and increase the competitiveness of its resource endowment and Canada's prosperity.		
Risk	**Risk Response Strategy**	**Link to Program Alignment Architecture**
If Canada fails to respond to changing market dynamics such as shifting energy demand to new markets and declining demand from the US, or maintain an appropriate investment climate, energy resource sectors may lose opportunities.	Further promote international partnerships through bilateral and multilateral engagement, namely by: • Supporting departmental and government activities to develop trade and investment markets in the Asia-Pacific region. • In partnership with DFATD, leading Canada's contribution to the G7 energy initiatives to respond to the Ukrainian crisis and the G20 energy-related initiatives leading up to Turkey's G20 Presidency in 2015. • Working with the United States and Mexico on key North American energy priorities. Build on partnerships with provinces and territories to identify and advance areas for collaboration, and continue to play a lead role in implementing the Government's plan for Responsible Resource Development. Continue progress on establishing a sound liability, legislative and regulatory regime for oil and gas development.	Canada's Natural Resource Sectors are Globally Competitive Natural Resource Sectors and Consumers are Environmentally Responsible

Hazards and Emergency Management NRCan supports the management of emergencies, through prevention, preparedness and response, thereby helping to ensure the safety and security of Canadians.		
Risk	**Risk Response Strategy**	**Link to Program Alignment Architecture**
If Canada doesn't have sufficient safeguards in the event of a natural event or human-driven incident, it may negatively impact Canadians, the security of Canada's natural resource infrastructure as well as Canada's economy.	Collaborate with the interdepartmental community on expertise, tools and resources pertaining to early warning and response strategies for geohazards, including flooding, earthquakes, volcanic events, tsunamis and human-made events. Maintain the safety of the public and infrastructure, including its resiliency, by certifying, to a national standard, individual inspectors performing non-destructive testing. Provide analysis and lead on energy security, security of energy infrastructure, and response to energy supply disruptions.	Canada's Natural Resource Sectors are Globally Competitive Natural Resource Sectors and Consumers are Environmentally Responsible Canadians have Information to Manage their Lands and Natural Resources, and are Protected from Related Risks

Planned Expenditures

Budgetary Financial Resources (dollars)

2015–16 Main Estimates	2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
2,214,476,711	2,214,476,711	2,010,134,684	1,891,075,122

Information on changes from 2015-16 to 2017-18 can be found in the narrative following the Budgetary Planning Summary for Strategic Outcomes and Programs Table.

Human Resources (Full-Time Equivalents [FTEs])

2015–16	2016–17	2017–18
3,832	3,536	3,446

FTEs are extracted from the financial system and meet the following definition as set out by Treasury Board Secretariat: A measure of the extent to which an employee represents a full person-year charge against a departmental budget. Full-time equivalents are calculated as a ratio of assigned hours of work to scheduled hours of work. Scheduled hours of work are set out in collective agreements.

Budgetary Planning Summary for Strategic Outcome(s) and Program(s) (dollars)

Strategic Outcome(s), Program(s) and Internal Services	2012–13 Expenditures	2013–14 Expenditures	2014–15 Forecast Spending	2015–16 Main Estimates	2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
Strategic Outcome 1: Canada's Natural Resource Sectors are Globally Competitive							
Market Access and Diversification	55,420,361	59,733,334	60,560,771	48,685,006	48,685,006	46,583,308	31,935,098
Innovation for New Products and Processes	93,948,144	94,093,063	72,190,323	83,438,001	83,438,001	95,060,475	54,438,960
Investment in Natural Resource Sectors	73,319,149	65,333,593	62,966,653	54,230,114	54,230,114	54,864,751	54,858,818
Statutory Programs – Atlantic Offshore*	684,964,769	795,884,721	1,080,983,000	1,181,938,140	1,181,938,140	1,108,579,456	1,141,500,327
Subtotal	**907,652,423**	**1,015,044,711**	**1,276,700,747**	**1,368,291,261**	**1,368,291,261**	**1,305,087,990**	**1,282,733,203**
Strategic Outcome 2: Natural Resource Sectors and Consumers are Environmentally Responsible							
Energy-Efficient Practices and Lower-Carbon Energy Sources	342,424,547	314,652,883	303,636,248	253,978,461	253,978,461	187,217,607	137,640,376
Technology Innovation	152,200,348	155,738,548	148,670,865	126,472,078	126,472,078	112,852,111	109,502,195
Responsible Natural Resource Management**	236,874,939	282,047,031	275,118,765	193,117,981	193,117,981	165,816,726	133,287,595
Subtotal	**731,499,834**	**752,438,462**	**727,425,878**	**573,568,520**	**573,568,520**	**465,886,444**	**380,430,166**

Strategic Outcome 3: Canadians have Information to Manage their Lands and Natural Resources, and are Protected from Related Risks							
Protection for Canadians and Natural Resources	55,604,146	65,535,095	67,856,955	58,672,639	58,672,639	59,053,121	51,531,732
Landmass Information**	90,961,341	73,828,231	80,837,312	71,155,143	71,155,143	51,472,071	50,602,011
Subtotal	**146,565,487**	**139,363,326**	**148,694,266**	**129,827,782**	**129,827,782**	**110,525,192**	**102,133,743**
Internal Services Subtotal	**181,093,220**	**184,198,094**	**169,320,985**	**142,789,148**	**142,789,148**	**128,635,058**	**125,778,010**
Total	**1,966,810,964**	**2,091,044,593**	**2,322,141,876**	**2,214,476,711**	**2,214,476,711**	**2,010,134,684**	**1,891,075,122**

* Statutory Programs- Atlantic Offshore: As per the various Atlantic Offshore Accords, the Government of Canada receives royalties for offshore oil and gas production and subsequently pays an equal amount to the provinces of Nova Scotia and Newfoundland and Labrador.

** There was a slight change in the 2013-14 PAA structure at the sub-activity level that affects this table. A portion of expenditures previously reported under Landmass Information under Strategic Outcome 3 is now being reported under Responsible Natural Resource Management under Strategic Outcome 2. In 2012-13, expenditures in the amount of $560,000 have not been adjusted to transfer the expenditures from Landmass Information to Responsible Natural Resource Management as it was not considered a material amount.

Planned spending declines by $323 million, or 15%, from 2015-16 to 2017-18. This is attributable mainly to:

- A decrease under the Offshore Atlantic Accords, specifically related to agreements between the Government of Canada and the province of Nova Scotia. As the majority of the payments are related to revenues, the planned spending trend fluctuates depending on a number of factors such as production and pricing levels.

- A decline in program funding profile for several programs, the most significant of which are:
    - ecoENERGY for Renewable Power;
    - Port Hope Area Initiative; and
    - United Nations Convention on the Law of the Sea – Mapping of the North Pole.

  Offset by an increase in Sustainable Development Technology Canada's (SDTC) Sustainable Development Tech Fund.

- The sunsetting of several programs or initiatives in 2015-16 or 2016-17, including:
    - ecoENERGY Innovation Initiative;
    - ecoENERGY Efficiency;
    - ecoENERGY for Biofuels;
    - Forest Innovation and Expanding Market Opportunities;
    - Wind Power Production Incentive;
    - Climate Change Impacts and Adaptation; and
    - International Climate Change Participation/Negotiations and the Clean Energy Dialogue

In addition, the Major Projects Management Office sunsets at the end of 2014-15.

Government decisions on sunsetting programs would be reflected in the Department's future Budget exercises and Estimates documents

For the explanation on variances in actual expenditures and forecasted spending between 2012-13 and 2014-15, refer to the analysis included in the Departmental Spending Trend section that follows.

Alignment of Spending With the Whole-of-Government Framework

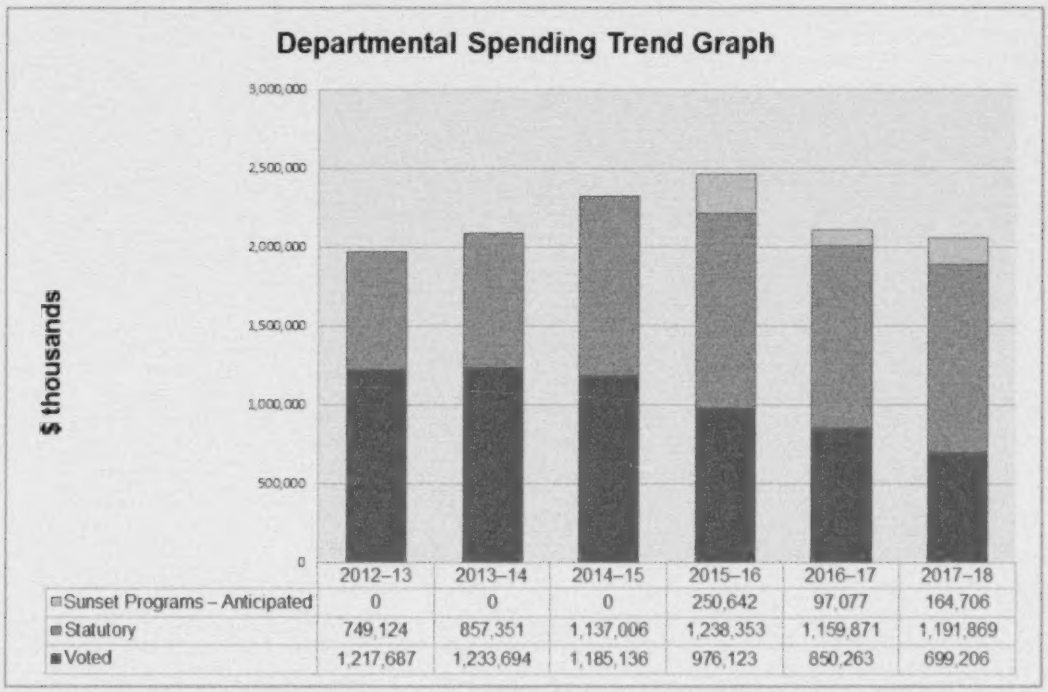
Alignment of 2015–16 Planned Spending With the Whole-of-Government Framework[xi] (dollars)

Strategic Outcome	Program	Spending Area	Government of Canada Outcome	2015–16 Planned Spending
1 Canada's Natural Resource Sectors are Globally Competitive	1.1 Market Access and Diversification	Economic Affairs	Strong Economic Growth	48,685,006
	1.2 Innovation for New Products and Processes	Economic Affairs	Strong Economic Growth	83,438,001
	1.3 Investment in Natural Resource Sectors	Economic Affairs	Strong Economic Growth	54,230,114
	1.4 Statutory Programs – Atlantic Offshore	Economic Affairs	Strong Economic Growth	1,181,938,140
2 Natural Resource Sectors and Consumers are Environmentally Responsible	2.1 Energy-Efficient Practices and Lower-Carbon Energy Sources	Economic Affairs	A Clean and Healthy Environment	253,978,461
	2.2 Technology Innovation	Economic Affairs	A Clean and Healthy Environment	126,472,078
	2.3 Responsible Natural Resource Management	Economic Affairs	A Clean and Healthy Environment	193,117,981
3 Canadians have Information to Manage their Lands and Natural Resources, and are Protected from Related Risks	3.1 Protection for Canadians and Natural Resources	Social Affairs	A Safe and Secure Canada	58,672,639
	3.2 Landmass Information	Social Affairs	A Safe and Secure Canada	71,155,143

Total Spending by Spending Area (dollars)

Spending Area	Total Planned Spending
Economic affairs	1,941,859,781
Social affairs	129,827,782
International affairs	-
Government affairs	-

Departmental Spending Trend



For fiscal year 2012-13 and 2013-14, spending represents the actual expenditures as reported in the Public Accounts. For fiscal year 2014-15, spending represents forecasted expenditures as of the end of November 2014. For the period 2015-16 to 2017-18, spending reflects approved funding by Treasury Board to support the departmental strategic outcomes as well as anticipated renewals of some programs sunsetting during this period. Anticipated renewals are included in

order to give a more reasonable picture of the future of the department since these are programs that have existed for a considerable period and which the department believes could be renewed. Amounts included as anticipated are not included in any other tables within this document.

As indicated in the chart above, NRCan's forecasted spending for 2014-15 is $2.322 billion, an increase of $0.36 billion, or 18%, from 2012-13 spending of $1.967 billion. This increase is mainly due to:

- Increase in statutory payments pursuant to the Atlantic Offshore Petroleum Accord Acts. Under these Acts, the revenues (e.g., royalties) from offshore resources are collected by the Receiver General for Canada. Once collected, NRCan transfers a like amount to Newfoundland and Labrador or Nova Scotia. Royalty revenues, in particular, are a function of variables such as international crude oil prices and offshore oil and natural gas production and costs that fluctuate depending on global commodity markets. Correspondingly, the transfers are subject to equivalent variations in any given period.
- An increase in program funding profile:
    - Increase in the Nuclear Legacy Liabilities Program;
    - Increase in ecoENERGY Innovation Initiative;
    - Increase in ecoENERGY for Renewable Power;
- A decrease in program funding profile:
    - Decrease in the Clean Energy Fund;
    - Decrease in ecoENERGY for Biofuels;
    - Decrease in Wind Power Production Incentive program;
    - Decrease in Forest Innovation and Expanding Market Opportunities;
    - Decrease in Revitalization of Satellite Station Facilities; and
    - Decrease for the Investment in Forest Industry Transformation Program.
- The sunsetting of the following programs in 2012-13 and 2013-14:
    - Advertising Campaign; and
    - African Model Forest Initiative.
- The start of the following programs in 2013-14 and 2014-15:
    - Stakeholder Engagement and Outreach Campaign; and
    - United Nations Convention on the Law of the Sea - Mapping the North Pole.
- The savings measures announced in Budget 2012.

For the explanation on variances in planned spending between 2015-16 and 2017-18, refer to the analysis included in the Planned Expenditures section earlier in this document.

Estimates by Vote

For information on NRCan's organizational appropriations, consult the 2015–16 Main Estimates on the Treasury Board of Canada Secretariat website.[xii]

Section II: Analysis of Programs by Strategic Outcomes

This section provides information on programs that are critical to the realization of NRCan's strategic outcomes and priorities for 2014-15.

More information about these programs and initiatives, as well as supporting evidence from internal evaluations and audit reports, can be found on NRCan's website[xiii].

Strategic Outcome 1: Canada's Natural Resource Sectors are Globally Competitive

Description: Canada is a major producer and exporter of natural resources. Being competitive in Canadian and foreign markets is imperative to the nation's economic growth. The objective of this Strategic Outcome (SO) is to help Canada's natural resource sectors become more globally competitive by adapting to the continuously changing conditions of success. This will be achieved by supporting the natural resource sectors to expand and diversify their markets to respond to the high demand from emerging economies, and diversify their product offerings to remain innovative and competitive.

Program 1.1: *Market Access and Diversification*

Description: Canada's natural resource sectors face two key barriers to market access and diversification: 1) trade and policy barriers, and 2) lack of awareness of Canada's natural resource products. The objectives of this Program are to break down those barriers and support the development and expansion of markets for Canadian natural resource products by making information available to Canadians, supporting negotiations to reduce trade barriers, and ensuring that regulations are up to date. This helps maintain natural resource sectors' access to existing markets and increases their access to new market segments.

Budgetary Financial Resources (dollars)

2015–16 Main Estimates	2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
48,685,006	48,685,006	46,583,308	31,935,098

The decline in planned spending from 2015-16 to 2017-18 is primarily due to the Expanding Market Opportunities program which sunsets[1] in 2016-17.

Human Resources (Full-Time Equivalents [FTEs])

2015–16	2016–17	2017–18
239	231	222

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to Be Achieved
Natural resource sectors have increased access to existing markets	Natural resource sectors have access to markets as defined by exports of energy products, mineral and metal products and forest products	Meet or exceed baseline percentage of market access	March 31, 2016
Natural resource sectors have increased access to new market segments	Natural resource sectors have access to new market segments as defined by exports of energy products, mineral and metal products and forest products	Meet or exceed baseline percentage of access to new market segments	March 31, 2016

Planning Highlights

To maintain Canada's position as a global mining leader, NRCan will continue to diversify markets for its minerals and metals commodities, as well as related mining services, technology

[1] Government decisions on sunsetting programs would be reflected in the Department's future Budget exercises and Estimates documents.

and know-how. NRCan will also work internationally to build capacity within emerging economies to promote the development of regulatory environments that are conducive to Canadian mining investment and to encourage industry to adopt corporate social responsibility practices.

The forest sector faces continued competition from emerging producers of forest products and needs to continue to diversify its markets. NRCan will support efforts to increase the sector's access to new markets and to increase penetration into market segments such as the non-residential and mid-rise sectors.

NRCan will pursue its work to modernize Canada's regulatory systems for energy project reviews, as well as to enhance the participation and engagement of Aboriginal peoples in resource development. NRCan will continue to enhance energy safety and security in areas such as marine, pipeline, offshore nuclear and rail transportation. Internationally, NRCan will promote energy market diversification by pursuing new markets.

Sub-Program 1.1.1: *Mineral and Metal Markets Access and Development*

Description: Canadian producers of minerals and metals require access to export markets since domestic production exceeds domestic demand for many commodities. However, tariffs and non-tariff barriers can constrain exports, as can policies and measures that reduce demand for minerals, metals and products containing metals, and certification schemes that discriminate against Canadian producers. Through this Sub-program, NRCan administers the Export and Import of Rough Diamonds Act and regulations that implement Canada's international obligations under the Kimberley Process Certification Scheme, ensuring market access for Canadian diamond producers and users.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
1,601,063	1,601,063	1,601,063

Human Resources (FTEs)

2015–16	2016–17	2017–18
4	4	4

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Rough diamond market access is supported through the efficient implementation of Canada's international obligations under the Kimberley Process Certification Scheme	Percentage of Kimberley Process export certificates issued within one business day of the receipt of a completed and valid application	97%	March 31, 2016

Planning Highlights

NRCan will continue to implement Canada's international obligations under the Kimberley Certification process by ensuring that 97% of Kimberley Process export certificates are issued within one business day of receipt of a completed and valid application.

The Department will ensure minerals, metals and mining interests, issues and perspectives are represented and given due consideration in the development of domestic and international trade policies and agreements.

Sub-Program 1.1.2: *Forest Products Market Access and Development*

Description: Canada's forest sector has traditionally relied heavily on exports of wood for residential construction in the United States. To maximize value from its resource, Canada must develop new forest products and end-uses in existing markets, and diversify its geographical markets. To do so, it must reduce barriers to market access posed by trade restrictions, tariffs, regulations and misconceptions of the environmental record of Canada's forest sector and its products. Through this Sub-program, NRCan provides financial contributions to Canadian forest industry associations to support initiatives to expand exports to international markets and

increase the use of wood in North American non-residential construction. It also provides financial contributions and science-based information to industry partners to support the development and dissemination of information products that promote the environmental reputation of Canada's forest sector in international markets. Also, it provides expertise to other federal departments in support of Canada's international negotiating positions on trade and environmental issues. This Sub-program includes two programs: Expanding Market Opportunities[xiv] and Implementation of the International Climate Change Strategy and continued engagement and alignment with the U.S., including the Clean Energy Dialogue.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
22,403,001	22,023,496	7,761,696

Human Resources (FTEs)

2015–16	2016–17	2017–18
67	62	53

The decline in planned spending from 2015-16 to 2017-18 is primarily due to the Expanding Market Opportunities program which sunsets[2] in 2016-17.

[2] Government decisions on sunsetting programs would be reflected in the Department's future Budget exercises and Estimates documents.

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Forest industry has increased sales of Canadian wood products in international markets	Diversity of markets for Canadian wood products Measure: Using the change in the values of the Herfindahl Index to measure Canada's success in diversifying its wood product exports away from one core market (i.e., the United States) and towards offshore markets over time	Favourable yearly average (trending towards '0' over the five-year period) against 2011 base year[xv] value of 0.397 The closer the value is to 0, the more a country (i.e. Canada) diversified its exports away from dependency on one key market	March 31, 2017
	Dollar value of wood product sales in targeted offshore markets (China, Korea, Japan and Europe (EU 27)) and other new emerging markets (e.g., India, Middle East)	10% increase over 2011 base year[xvi] value of $3.5 billion for targeted offshore markets and $99.3 million for new emerging markets	March 31, 2017
Forest industry has increased sales of Canadian wood products in new market segments	Dollar value of wood products used in non-residential construction projects built with wood as opposed to traditional means (Canada and US)	10% increase over 2011 base year[xvii] value of $130.3 million	March 31, 2017
Stakeholders in targeted international markets have positive perception of Canadian forest practices and products	Percentage of targeted stakeholders who have a positive perception of Canadian forest practices and products	Majority (51%) of targeted stakeholders have positive perceptions	March 31, 2017

Planning Highlights

Through its Expanding Market Opportunities program and in partnership with forest product associations and provincial governments, NRCan will support market development, market access and acceptance activities in offshore (e.g., China, Korea, Europe, India, Middle East) and North American markets to expand opportunities for the export of Canada's forest products.

The Department will continue to collaborate with and provide expertise to other federal departments and will liaise with provinces, territories and industry stakeholders in support of Canada's international negotiating positions on trade and environmental issues.

The Department will ensure that Canada's international climate change objectives related to forests are advanced in international meetings during the year, and provide updated forest-related estimates to Environment Canada for Canada's 2016 greenhouse gas inventory report to the United Nations Framework Convention on Climate Change.

NRCan will provide financial contributions and science-based information to industry and international partners to support the development and dissemination of information products that promote the environmental reputation of Canada's forest sector in international markets.

Sub-Program 1.1.3: *Energy Market Regulation and Information*

Description: Canada realizes many benefits as a result of robust energy markets and strong trade in energy resources. Ensuring these benefits continue to contribute to the broader economy requires regular assessment, analysis and monitoring of Canadian energy resources, including infrastructure and regulations, as well as early engagement with Aboriginal Peoples. Through this Sub-program, NRCan aims to foster a competitive Canadian energy sector by working with provinces, territories, and other stakeholders, and internationally, to articulate Canada's approach to the management of energy resources. It assesses and updates (when necessary) federal energy legislation and regulations and policies relating to such areas as offshore oil and gas, pipelines, and nuclear; engages domestically and internationally on energy issues; and provides Canadians with information on energy markets. NRCan engages west coast Aboriginal communities on issues related to energy infrastructure development and coordinates the activities across multiple Government of Canada departments to increase Aboriginal involvement in this development.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
24,680,942	22,958,749	22,572,339

Human Resources (FTEs)

2015–16	2016–17	2017–18
168	165	165

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Actions are taken domestically and internationally to diversify Canada's energy markets	The number of high-level (ADM and above) federal-provincial-territorial engagements and international bilateral and multilateral engagements with countries and organizations in key market regions i.e. Asia-Pacific, US/Americas and Europe	15	March 31, 2016
Actions taken to identify and address non-regulatory issues that are of concern to Aboriginal communities that could be impacted by the development of West Coast energy infrastructure development	Percentage of non-regulatory issues identified across BC First Nations potentially impacted by energy infrastructure development that are being (or have been) addressed through federal actions	30%	June 2015
The Government of Canada's regulatory and legislative frameworks governing Canada's energy resources (e.g., pipelines, offshore oil and gas) is renewed and continuously improved	Number of assessments and/or updates to energy regulations or legislation and/or Canada's energy regulatory or legislative frameworks	2	Ongoing

Planning Highlights

Domestically, NRCan will continue to support the development of new energy infrastructure and improve the resiliency of existing infrastructure, including advancing a strategy to enhance Aboriginal participation in pipeline safety, preparing advice and recommendations on proposed major pipeline projects (e.g., Northern Gateway), responding to the recommendations of the Special Federal Representative on West Coast Energy Infrastructure, Douglas Eyford, to help build public confidence for major pipeline projects, working with other jurisdictions and industry to enhance cyber security, and promoting public energy literacy.

NRCan will promote offshore oil and gas development, including finalizing the Canada-Quebec Offshore Accord legislation; updating rules and practices in the Atlantic offshore; developing options to replace the current Georges Bank moratorium; settling NAFTA dispute over Research and Development Guidelines by the Canada-Newfoundland and Labrador Offshore Petroleum Board; developing a domestic mechanism to implement Article 82 of the United Nations Convention on the Law of the Sea; and finalizing implementation of Wells 29 recommendations.

Concurrently, NRCan will establish a sound liability, legislative and regulatory regime for oil and gas development by implementing the *Energy Safety and Security Act* and the *Pipeline Safety Act*, including developing supporting regulations; developing Occupational Health and Safety regulations; and seeking National Energy Board guidance on the application of "best available technology" to federally regulated pipelines.

In addition, NRCan will put in place the necessary measures to bring the *Nuclear Liability and Compensation Act* into force. The Act will increase the accountability of operators for nuclear accidents and improve the treatment of potential claimants for compensation. Bringing the Act into force will require the establishment of regulations and the development of an appropriate insurance framework through consultations with operators and insurers. The improved legislation will enhance market access for Canadian companies by providing them with legal certainty when operating internationally and likewise provide that certainty to international companies working in Canada. As well, NRCan will finalize the restructuring of Atomic Energy of Canada Limited's Nuclear Laboratories and the implementation of the Government-owned Contractor-operated model to bring private-sector rigour and efficiencies into the management of AECL's facilities and services.

NRCan will leverage and foster federal-provincial-territorial collaboration and engagement on energy, both domestically and internationally, including preparing for the 2015 Energy and Mines Ministers' Conference and overseeing the implementation of set deliverables.

Internationally, NRCan will work to promote Canada as a reliable and responsible resource developer through international bilateral and multilateral engagement, advocacy and communications. NRCan will support government activities to develop trade and investment markets in the Asia-Pacific region (e.g., Canada-Japan Economic Partnership Agreement negotiations, APEC (Asia-Pacific Economic Cooperation) Energy Ministers Meeting, the Canada-India Ministerial Energy Dialogue, International Liquid Natural Gas (LNG) Producers and Consumers Conference). In partnership with DFATD, NRCan will lead Canada's contribution to the G7 energy initiatives to respond to Ukrainian crisis and the G20 energy-related initiatives leading up to Turkey's G20 Presidency in 2015.

Furthermore, NRCan will renew partnership with the United States and Mexico on key North American priorities through implementation of the Canada-US Memorandum of Understanding (MOU) Concerning Cooperation on Energy (signed in 2014)[3] and the Canada-US-Mexico Energy MOU (signed in 2014)[4].

NRCan will address barriers to market for oil sands, shale gas and alternative fuels by monitoring developments on low carbon fuel standards in the US and Europe, and will develop Canada's position on shale gas and hydraulic fracturing. NRCan will pursue its policy analysis on market access issues, such as oil and gas pipelines, LNG export facilities, crude oil and natural gas price differentials, potential for penetration of Canadian oil and gas into new sectors.

[3] To prioritize collaborative work under the following themes: responsible development of unconventional oil and gas; safe and modern energy infrastructure; responsible use of energy and energy efficiency; carbon capture and storage; and, joint global leadership.

[4] To build "the most competitive and dynamic [energy] region in the world", advancing the promotion of continental energy security, integration, and collaboration; strengthening government-to-government and regulator relationships; and, fostering business-to-business engagement in the energy sector.

Program 1.2: *Innovation for New Products and Processes*

Description: Optimizing the use of Canada's natural resources and the processes by which they are developed would improve the productivity and competitiveness of natural resource sectors. The objective of this Program is to maximize productivity and competitiveness by encouraging the adoption of new technologies and processes and the development of new products. These objectives are achieved by conducting and supporting research and development and by delivering frameworks and policies for, and demonstrations of, new applications, technologies, processes, and products.

Budgetary Financial Resources (dollars)

2015–16 Main Estimates	2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
83,438,001	83,438,001	95,060,475	54,438,960

The decline in planned spending from 2015-16 to 2017-18 is primarily due to the Forest Innovation program which sunsets[5] in 2016-17.

Human Resources (Full-Time Equivalents [FTEs])

2015–16	2016–17	2017–18
249	246	223

[5] Government decisions on sunsetting programs would be reflected in the Department's future Budget exercises and Estimates documents.

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Natural resource sectors increase production of new products and processes	Number of new products and processes resulting from NRCan information	5 per year	March 31, 2016
	Research and development (R&D) expenditures in natural resource sectors, specifically total intramural R&D expenditures in energy, mining and forest sectors	Favourable 10-year trend	March 31, 2016
Public and private sector organizations' business and program decision-making ability is improved as a result of geospatial innovation	Number of public or private sector organizations related to natural resource development using NRCan's innovative geospatial systems, applications or frameworks to aid decision-making	5 per year	March 31, 2016

Planning Highlights

Increasing access to international markets and new market segments supports the global competitiveness of Canada's natural resource sectors.

However, maintaining that competitiveness is also dependent on increasing the productivity and diversification of Canada's natural resource products. NRCan will seek to encourage the adoption of new technologies by industry stakeholders in all sectors. For the minerals and metals sector, the Department will focus on the development of demonstration of technologies that will aim to reduce the risks associated with exploration. The Department will continue to work through the Federal Committee on Geomatics and Earth Observation to advance the adoption of common standards for authoritative, interoperable geospatial information, services and applications, enabling collaboration across Government, innovation and better services for Canadians. In support of the forest sector, NRCan will assist with the development and commercialization of new products and processes to expand opportunities beyond traditional uses and markets.

Sub-Program 1.2.1: *Mining Innovation*

Description: Increased innovation is needed to improve the productivity and competitiveness of Canadian mines. However, declining university enrolment in mining-related fields and changes in the industry are affecting Canada's capacity for mining innovation. Through this Sub-program, NRCan encourages mining innovation by using a collaborative approach to reduce financial risks for industry partners, and ensuring that program priorities are aligned with business needs. NRCan also conducts coordinated research to address priorities identified by stakeholders, such as technologies to safely and profitably develop and operate deeper mines, and to process ores, concentrates and recyclable materials that cannot be processed with commercially available technologies. As well, it creates opportunities to develop the next generation of professionals, and supplies certified reference materials to service providers and industry analytical laboratories, which rely on such reference materials to ensure the quality of data that inform mineral investment decisions, determine product value, drive process improvement, and improve confidence in environmental monitoring.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
2,128,292	2,069,452	2,069,452

Human Resources (FTEs)

2015–16	2016–17	2017–18
30	29	29

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Technology developers increase demonstration of innovative mining and processing technologies	Number of demonstration projects	2 over 5 years	March 31, 2017

Planning Highlights

By leading the early stages of technological development, the Department is able to help industry overcome barriers to the adoption of new technologies and encourage their use by the minerals and metals industry. For example, NRCan will evaluate the potential of synthetic ropes for replacing standard steel wire ropes for hoisting used in mining operations, including conducting testing in a laboratory setting followed by in-situ testing at an industrial site. It will also develop flow-sheets (specific to an all-in-one flotation system) for rare earth elements with the aim of reducing the processing time for the metals and reducing associated costs.

Sub-Program 1.2.2: *Forest Sector Innovation*

Description: Canada's forest sector has experienced a decrease in its market share as a result of changing global and regional demand and increasing competition. To regain its competitive position and compete profitably in a wider array of markets, the sector must focus on innovation (i.e., research, development and deployment) and move towards a more diversified and innovative mix of higher-value specialized products, processes and technologies. Through a forest sector innovation system sector partners can align and pursue common innovation priorities. Through this Sub-program, NRCan brings together various players in the forest sector innovation system – governments, industry, communities (Aboriginal and non-Aboriginal), and research institutions – to focus on collectively identifying, funding and delivering on the innovation priorities of the sector. NRCan also conducts research with, and provides financial contributions to, FPInnovations, other forest sector research partners, and eligible forest product companies to research, develop and deploy new products, processes and technologies. This Sub-program includes the Canadian Regulatory System for Biotechnology, the Forest Innovation Program, the Forest Research Institutes Initiative, the Investments in Forest Industry Transformation and the Aboriginal Forestry Initiative.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
72,816,903	84,500,573	43,879,058

The decline in planned spending from 2015-16 to 2017-18 is primarily due to the Forest Innovation program which sunsets[6] in 2016-17.

Human Resources (FTEs)

2015–16	2016–17	2017–18
184	182	160

[6] Government decisions on sunsetting programs would be reflected in the Department's future Budget exercises and Estimates documents.

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Aboriginal communities have the knowledge needed to take advantage of emerging economic development opportunities	Number of new economic development projects facilitated, brokered, and/or developed with NRCan knowledge and funding	8 new projects facilitated, brokered, and/or developed with NRCan knowledge and funding	March 31, 2016
Forest sector innovation is accelerated by the endorsement of an annual research plan by the forest sector innovation system	Annual research plan endorsed by the FPInnovations National Research Advisory Committee (NRAC)	1 endorsed research plan	March 31, 2016
NRCan, industry, provinces and academia develop new technologies which lead to higher-value Canadian forest products and processes to create a better competitive position for the Canadian forest sector	Number of new higher-value Canadian forest products or processes that are derived from new technologies developed	10	March 31, 2018

Planning Highlights

Developing a more innovative, diversified range of forest products is critical to sustaining the economic competitiveness of the forest sector and requires ongoing investments in research, development and deployment of new technologies and processes. NRCan will support the forest sector's efforts to coordinate and align forest sector research, development and innovation in Canada across the innovation system.

Through its programs geared toward forest sector innovation, the Department will continue to provide support for the research, development, testing and commercialization of technologies, processes, and products that enhance the competitiveness of Canada's forest sector, specifically in the area of non-traditional, higher-value forest products.

In addition, NRCan will contribute to increasing Aboriginal participation in major resource projects relating to forestry by enhancing the depth of Aboriginal capacity to do so and seize new opportunities. The Department will also participate in the Federal Framework for Aboriginal Economic Development through its funding program, the Strategic Partnerships Initiative.

Sub-Program 1.2.3: *Geospatial Innovation*

Description: Natural resource sectors, like other public and private sectors, rely on location-based information to make production and business decisions. This Sub-program supports federal, provincial, territorial, and private sector partnerships and collaboration to deliver cost-effective geospatial science, technology, data, policy and applications solutions that are built once and used many times across economic, social and environmental sectors. This Sub program includes the GeoConnections program.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
8,492,806	8,490,450	8,490,450

Human Resources (FTEs)

2015–16	2016–17	2017–18
35	35	34

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Interoperability of geospatial data	Number of public or private sector organizations adopting recognizable standards, policies, tools and frameworks in value-added applications to support their business objectives	10 per year	March 31, 2016

Planning Highlights

In order to support the Government of Canada's commitment to Open Data, including practices that increase efficiency and ensure the availability of high-quality, authoritative data, there is a growing need for collaborative, innovative initiatives across government.

Two main activities will support this. First, through Release 1 of the Federal Geospatial Platform, the Department will improve the discovery, accessibility and usability of federal geospatial data and web services, working with 20 other federal departments and agencies to provide effective governance of the project as well as proactive, whole-of-government leadership; success will be documented through quarterly reporting activities to the NRCan Project Management Office and annual reporting to Treasury Board. Second, NRCan will maintain a core federal leadership role and coordination to ensure the advancement of the Canadian Geospatial Data Infrastructure, enabling interoperability, accessibility and use of geospatial information through partnerships and collaborations with other federal departments, governments, as well as industry, non-profits and academia.

The Canada Centre for Mapping and Earth Observations continues to enhance stewardship through the promotion of geospatial standards, operational policies and tools to increase the interoperability, accessibility and use of geospatial information across a large variety of applications and uses for various levels in government, industry, non-profit organizations, and academia, across Canada and internationally. These efforts are supported by the Canadian Council on Geomatics, a collaborative body; federal, provincial and territorial governments; the

Federal Committee on Geomatics and Earth Observation, a federal collaborative body; as well as the Geomatics Round Table, which includes government, academic and private sector stakeholders across Canada.

Program 1.3: *Investment in Natural Resource Sectors*

Description: Investing in the development of natural resources is costly and risky due to inherent uncertainties in the potential economic viability of natural resource projects. Many factors must be considered when deciding whether to develop a natural resource project. In some cases, limited information may make it difficult for investors and/or companies to assess potential opportunities. The objective of this Program is to encourage investment in the natural resource sectors by increasing industry's knowledge of opportunities, regulations and obligations. This ensures that a more accurate assessment of the expected benefits of an investment can be made and subsequently compared to its costs and risks, thereby allowing for a more comprehensive investment decision. This objective is achieved by providing funding and information on the factors that determine the potential economic viability of natural resource projects.

Budgetary Financial Resources (dollars)

2015–16 Main Estimates	2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
54,230,114	54,230,114	54,864,751	54,858,818

Human Resources (Full-Time Equivalents [FTEs])

2015–16	2016–17	2017–18
355	346	344

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Natural resource sectors have increased investment	Growth of capital expenditures in the energy sector (average of past 5 years) compared to growth in overall capital expenditures in Canada (average of past 5 years)	The average 5-year growth rate of capital expenditures in the energy sector is equal to or higher than the average 5-year growth rate in capital expenditures in Canada	March 31, 2016
	Growth of capital expenditures in the minerals and metals sector (average of past 5 years) compared to growth in overall capital expenditures in Canada (average of past 5 years)	The average 5-year growth rate of capital expenditures in the minerals and metals sector is equal to or higher than the average 5-year growth rate in capital expenditures in Canada.	March 31, 2016
	Growth of capital expenditures in the forest sector (average of past 5 years) compared to growth in overall capital expenditures in Canada (average of past 5 years)	The average 5-year growth rate of capital expenditures in the forest sector is equal to or higher than the average 5-year growth rate in capital expenditures in Canada	March 31, 2016

Planning Highlights

Access to international markets and new market segments and innovation to support the global competitiveness of the natural resource sectors require capital investment. In 2015-16, NRCan will promote increased capital investment by the private sector through dissemination of knowledge and expertise on opportunities for investment in Canada, and through promotion activities that position Canada as an attractive destination for capital.

NRCan will generate new geoscience maps and data sets to inform priority location-based geoscience issues that will help guide industry to determine Canada's mineral and energy resource potential. The Geo-Mapping for Energy and Minerals program will work with Northern communities to identify opportunities and new methodologies for industry investment in Canada's North. NRCan will also conduct targeted resource assessments and develop tools for use in unconventional and untapped energy resource areas. Such new geoscience information,

methods, tools and models serve to support the discovery of new mineral deposits and the mining industry's effectiveness and long-term prosperity.

Departmental efforts to promote capital investment in Canadian natural resources will also focus on the minerals and metals sector.

Sub-Program 1.3.1: *Mineral Investment*

Description: Canada must compete for mineral investment because capital is mobile and flows to countries that offer attractive, risk-adjusted returns for investors. Mineral exploration creates opportunities for Canadians and can lead to increasing investments and revenue from resources over the medium term. Governments need specific information on mineral exploration and mine development to manage policies that affect mineral investment. Through this Sub-program, NRCan collects socioeconomic data on mineral exploration, deposit appraisal and mine complex development expenditures, physical output from production facilities, and the value of mineral production and trade. NRCan prepares tax rulings for provisions of the Income Tax Act administered by the Minister, and provides expertise, analysis and support to other departments with a lead responsibility for tax and investment policies.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
10,124,002	10,123,897	10,123,897

Human Resources (FTEs)

2015–16	2016–17	2017–18
103	103	102

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Industry decision-makers and potential investors are provided with timely information on mineral socio-economic data	Number of data sets released	5 per year	March 31, 2017

Planning Highlights

The department will promote Canadian best practices in responsible mineral resource governance and Corporate Social Responsibility through implementation of the Government of Canada's CSR Strategy and Extractives Strategy.

NRCan will also highlight Canada's positive mining investment climate through the development of 10 information products (including: an Investment Guide, production and exploration statistics, maps and information bulletins); and through promotional outreach activities such as presence at tradeshows and key events.

Sub-Program 1.3.2: *Targeted Geoscience[7] Initiative*

Description: Mineral resources are one of the principal economic drivers in many rural and remote Canadian communities. New geoscience knowledge and techniques are required to help industry explore more effectively for undiscovered mineral resources in existing and emerging mining areas. Through this Sub-program, NRCan develops an understanding of entire mineral systems and provides industry with innovative ways for deep exploration, thereby maximizing yield. It targets selected mineral districts across Canada to provide the best examples of Canada's major ore systems, and to develop optimal predictive models and techniques for deep exploration. This helps natural resource sectors access viable investment opportunities. This Sub-program includes the Targeted Geoscience Initiative program.

[7] **Geoscience** is an all-encompassing term which refers to the fields of science dealing with planet Earth and its systems including the atmosphere, hydrosphere, lithosphere and biosphere. Specific fields of geoscience (or "earth science") include geology, hydrology, glaciology, geophysics and geodesy.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
5,181,962	5,181,925	5,181,925

Human Resources (FTEs)

2015–16	2016–17	2017–18
47	46	46

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Industry applies NRCan knowledge and/or techniques, enabling more effective exploration for as-yet undiscovered resources	Number of emerging public geoscience knowledge or methodologies relevant to discovery of new mineral resources that have been adopted in industry exploration programs.	5 per year	March 31, 2016

Planning Highlights

NRCan will establish a key stakeholder advisory group and hold regular formal meetings with recognized stakeholder groups (industry and academia) to provide input and advice regarding the development and implementation of future program activities related to mineral exploration. In addition, NRCan will continue to generate new scientific publications associated with the recently completed ore system synthesis and methodology developments.

Sub-Program 1.3.3: *Geo-Mapping*[8] *for Energy and Minerals*

Description: Public geoscience information stimulates industry investment, which might not otherwise occur given the level of uncertainty about exploration opportunities. Through this Sub-program, NRCan provides modern geological knowledge of the northern landmass to the private sector to guide exploration investment in the North. It focuses on characterizing the regional geological context to establish whether areas have a high or low likelihood of resource potential. In addition to reducing risk and stimulating exploration investments by industry, this same geological knowledge also informs Northerners' land-use decisions so that they can undertake responsible resource development that does not compromise conservation efforts or other land-use considerations. Through this Sub-program, NRCan promotes exploration and long-term sustainable development for vast and untapped resources in the North. This Sub-program includes the Geo-Mapping for Energy and Minerals program.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
34,833,259	35,468,063	35,462,130

Human Resources (FTEs)

2015–16	2016–17	2017–18
169	161	160

[8] **Geo-mapping** refers to the use of state-of-the-art geological science and technologies to document geological structures, develop geological models and regional frameworks, and create geological maps. This information provides the basis for establishing which geological formations have the highest likelihood of resource potential.

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Governments and industry have increased geoscience information on Canada's North to help guide development decisions	% of new publication releases accessed (new releases are those released and accessed within a 12-month period)	75%	March 31, 2016
	Number of unique NRCan products accessed (e.g., downloaded) annually on Northern geoscience information.	50 per year	March 31, 2016

Planning Highlights

NRCan will generate new geoscience maps and data sets to inform priority location-based geoscience opportunities that will help guide industry to determine Canada's mineral and energy resource potential.

The department will collaborate with northern stakeholders, such as northern Communities and Institutions to engage and mobilize northerners and their institutions in order to maximize benefits for northerners from Geo-Mapping for Energy and Minerals activities and knowledge and support evidence-based land use planning in Canada's North.

NRCan will issue geoscience grant funding to Canadian academia to help attract high-quality geoscience research activities that will augment the understanding of the regional geological context in Canada's North and complement NRCan expertise.

Sub-Program 1.3.4: *New Energy Supply*

Description: Given increased energy use and global decline in conventional energy resources, the development of new sources of energy is important in addressing Canada's long-term energy requirements. These new sources will support the energy supply mix, which is an important part of sustainable long-term economic growth in Canada. However, Canada's private sector currently lacks geoscience information to enable it to make the best investment decisions. Through this Sub-program, NRCan provides the public and private energy sector with strategic assessments, methodologies and information required to make investment decisions on unconventional (shale oil and shale gas) and northern and offshore energy resources, which could increase natural resource investment and support a sustainable energy mix to meet Canada's future energy demands.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
4,090,891	4,090,866	4,090,866

Human Resources (FTEs)

2015–16	2016–17	2017–18
36	36	36

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Public and private sectors access knowledge products supporting assessment and investment decision-making on new energy exploration basins	Number of unique reports, such as strategic assessments, accessed (e.g., downloaded) annually by stakeholders	25 per year	March 31, 2016

Planning Highlights

NRCan will conduct and publicly release two (2) resource assessments for new emerging Canadian tight oil/ shale gas plays, make five stakeholder presentations and collaborate with external companies and agencies to develop and apply new assessment methods.

The department will collaborate with external companies and agencies on developing methodology for tight oil and shale gas reservoir characterization and make five presentations to industry and academia on new research methodologies.

NRCan will identify and validate key energy geoscience and geo-engineering issues and research gaps with the goal of proposing a national approach to addressing these challenges.

Program 1.4: *Statutory Programs – Atlantic Offshore*

Description: Through this Program, NRCan monitors and facilitates payment disbursal agreements and transfer payments under the Atlantic Offshore Accord Acts. The Program includes the following programs: Canada Newfoundland Offshore Petroleum Board; Payments to the Newfoundland Offshore Petroleum Resource Revenue Fund; Payments to the Nova Scotia Offshore Revenue Account; Nova Scotia Crown Share Adjustment Payment; and Canada-Nova Scotia Offshore Petroleum Board.

Budgetary Financial Resources (dollars)

2015–16 Main Estimates	2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
1,181,938,140	1,181,938,140	1,108,579,456	1,141,500,327

The decline in planned spending from 2015-16 to 2017-18 is primarily due to a decrease under the Offshore Atlantic Accords, specifically related to agreements between the Government of Canada and the province of Nova Scotia. As the majority of the payments are related to revenues, the planned spending trend fluctuates depending on a number of factors such as production and pricing levels.

Human Resources (Full-Time Equivalents [FTEs])

2015–16	2016–17	2017–18
-	-	-

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Statutory requirements relating to offshore petroleum payments in Nova Scotia and Newfoundland and Labrador are managed in a timely manner	Percentage of offshore payments processed in a timely manner	100%	Ongoing
Statutory requirements relating to offshore petroleum payments in Nova Scotia and Newfoundland and Labrador are managed in an accurate manner	Percentage of offshore payments processed in an accurate manner	100%	Ongoing

Planning Highlights

The Atlantic Offshore Accords provide that the benefits of revenues from offshore petroleum should flow to provinces as if the resources were on land. Revenues collected by the Receiver General for Canada in this regard are paid to the provinces of Nova Scotia, and Newfoundland and Labrador.

NRCan will continue to process offshore transfer payments to both Nova Scotia and Newfoundland and Labrador as required under the *Atlantic Offshore Accord Acts* in a timely and accurate manner.

Strategic Outcome 2: Natural Resource Sectors and Consumers are Environmentally Responsible

Description: Energy use and natural resource development can have negative impacts on the land, water, and air, which can affect the standard of living of current and future generations. The objective of this Strategic Outcome is to encourage natural resource consumers and sectors to lessen and prevent environmental impacts. NRCan contributes to the achievement of this outcome by:

- Encouraging the adoption of technologies, products, practices and services that improve efficiency and environmental performance;
- Fostering innovative solutions to environmental challenges associated with natural resource development and use; and
- Enabling the management of potential impacts on the environment.

Program 2.1: *Energy-Efficient Practices and Lower-Carbon Energy Sources*

Description: Canada's energy markets are defined by the decisions of consumers and producers who do not necessarily make choices that minimize their impact on the environment. Multiple barriers exist, including a lack of awareness of available options and their benefits, insufficient capacity for adoption (e.g., regulatory frameworks, codes and standards), and financial risk. The objectives of this Program are to address these barriers by encouraging and enabling energy consumers and producers to adopt cleaner and more efficient technologies, products, services and practices. These objectives are achieved through education and outreach activities, targeted incentives, and regulatory interventions that keep pace with technological changes.

Budgetary Financial Resources (dollars)

2015–16 Main Estimates	2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
253,978,461	253,978,461	187,217,607	137,640,376

The decline in planned spending from 2015-16 to 2017-18 is primarily due to the decreasing and sunsetting[9] program profiles for the Wind Power Production Incentive, ecoENERGY for Renewable Power program, ecoENERGY for Biofuels program, ecoENERGY Efficiency program and the International Climate Change Strategy and the Clean Energy Dialogue.

Human Resources (Full-Time Equivalents [FTEs])

2015–16	2016–17	2017–18
279	123	102

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Energy consumers and producers adopt environmentally responsible products and practices related to energy use and production	Biofuel production in Canada	Favourable 5-year trend, as per 2007 baseline of 786.1 million litres of ethanol and 92.8 million litres of biodiesel	Now, and Ongoing
	Canada's total annual energy savings due to efficiency (difference between energy use without energy efficiency improvements and energy use with energy efficiency improvements; the units are petajoules (PJ))	Favourable 5-year trend in PJ saved, as per 2008 baseline	Now, and Ongoing
	Renewable electricity generation capacity in megawatts (MW) across Canada	Favourable 5-year trend in MW, as per 2007 baseline of 6,753 MW of installed capacity (excluding large hydro)	Now, and Ongoing

[9] Government decisions on sunsetting programs would be reflected in the Department's future Budget exercises and Estimates documents.

Planning Highlights

Reducing the environmental impacts of energy use requires the identification and production of renewable energy sources. To this end, NRCan will support the Government of Canada in better understanding these sources (e.g., marine energy) and work with industry stakeholders to bolster capacity for its production through the ecoENERGY for Renewable Power program. The Department will also increase consumers' knowledge of energy-efficient practices through training under the ecoENERGY Efficiency program. These efforts will ultimately assist with reducing greenhouse gas emissions.

Sub-Program 2.1.1: *Renewable Energy Deployment*

Description: Canada has abundant renewable energy resources. Deployment of renewable energy technologies will diversify Canada's energy mix and, in the long term, decrease Canada's greenhouse gas emissions. Through this Sub-program, NRCan is developing a supportive policy framework for administering marine renewable energy measures in the federal offshore through the Marine Renewable Energy Enabling Measures program. NRCan also supports production from renewable energy projects already deployed through the ecoENERGY for Renewable Power and Wind Power Production Incentive programs. In addition, NRCan will continue to monitor the Federal Loan Guarantee for the Lower Churchill Hydroelectricity Projects.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
156,756,416	142,444,536	120,166,012

The decline in planned spending from 2015-16 to 2017-18 is primarily due to the sunsetting[10] of the Wind Power Production Incentive program and the decreasing funding profile of the ecoENERGY for Renewable Power program.

Human Resources (FTEs)

2015–16	2016–17	2017–18
6	6	4

[10] Government decisions on sunsetting programs would be reflected in the Department's future Budget exercises and Estimates documents.

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Renewable electricity is produced by the projects supported by NRCan programs	Number of terawatt-hours (TWh) of renewable electricity produced	15.7 TWh	March 31, 2016
Federal Government decision makers have information on policy framework for administering marine renewable energy in federal offshore.	Production of policy framework.	Policy framework	March 31, 2016

Planning Highlights

NRCan will continue to deliver on the ecoENERGY for Renewable Power Program and the Wind Power Production Incentive Program to diversify Canada's energy mix by providing production incentives to producers of renewable electricity. Programming has been instrumental in increasing the supply of renewable electricity, such as wind, biomass, low-impact hydro, geothermal, solar, photovoltaic and ocean energy to the electrical grid.

The department will bolster industry capacity to produce renewable forms of energy by supporting the production of up to 15.7 terawatt-hours of clean electricity through its ecoENERGY for Renewable Power and Wind Power Production Incentive programs.

NRCan will develop a robust policy framework to inform decision-making on the administration of marine renewable energy in the federal offshore, through its Marine Renewable Energy Enabling Measures program.

The Department will manage the loan guarantee for the Lower Churchill River hydroelectric projects.

Sub-Program 2.1.2: *Support for Clean Energy Decision-Making*

Description: Canada requires an understanding of how clean energy production options can fit within the broader energy system. Public and federal government decision-makers need information to evaluate the effectiveness of solutions to the domestic and international environmental impacts of energy development. Through this Sub-program, NRCan provides tools, information and analysis to federal decision makers and the Canadian public regarding energy-related environmental issues (particularly climate change) and clean energy technologies, and supports Canada's international climate change negotiators. This Sub-program includes activities under three Clean Air Agenda programs: the Clean Energy Policy program, the International Negotiations program, and the Clean Energy Dialogue.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
3,825,600	-	-

The decline in planned spending from 2015-16 to 2017-18 is primarily due to the sunsetting[11] of the International Climate Change Strategy and Clean Energy Dialogue program.

Human Resources (FTEs)

2015–16	2016–17	2017–18
21	0	0

[11] Government decisions on sunsetting programs would be reflected in the Department's future Budget exercises and Estimates documents.

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Canadian international climate change objectives are advanced in international meetings	Percentage of Canadian objectives reflected each year in the outcomes of relevant international meetings (e.g., UNFCCC)	80%	March 31, 2016
The public and federal government decision-makers have access to information that supports decisions on climate change and clean energy issues	Number of new or updated information products available to the public that aim to advance knowledge of Canada's energy resources and environmental impacts	10	March 31, 2016
	Provision of information products (e.g., advice and analysis) to federal decision-makers regarding clean energy and environmental issues in response to requests	95% of requests fulfilled	March 31, 2016

Planning Highlights

The Government of Canada is taking action to develop solutions to global economic, energy and climate change challenges. NRCan advances Canada's energy and technology interests at environmental and climate-related international fora (e.g., United Nations Framework Convention on Climate Change, the North American Leaders Summit, and the Clean Energy Ministerial process), with the aim of helping to ensure that Canadian objectives are reflected in the outcomes of the discussions.

Furthermore, the Department collaborates with the United States to modernize energy use and efficiency, which could include, for example, closer collaboration on harmonized energy efficiency performance standards and labelling. NRCan will also continue to support Environment Canada (the lead department for Canada) on the Clean Energy Dialogue, a Canada-U.S. partnership to enhance clean energy technology implementation to reduce greenhouse gases.

NRCan also provides information to decision-makers on domestic clean energy, climate change policy, and energy-related environmental issues, such as the development of Canada's post-2020 emissions reduction target and the federal government's sector-by-sector regulatory approach to reduce greenhouse gas emissions and air pollutants.

Finally, the Department supports the growth of Canadian small and medium sized enterprises (SMEs) in global markets for clean energy innovation and energy efficiency.

Sub-Program 2.1.3: *Alternative Transportation Fuels*

Description: Alternative fuels (e.g., natural gas, ethanol, biodiesel) have a lower carbon content and thus emit fewer greenhouse gases than conventional transportation fuels, such as gasoline and diesel. However, fuel producers and users, vehicle and equipment manufacturers, and policy makers can face barriers to the production and use of alternative transportation fuels. These barriers include lack of market capacity to produce alternative fuels; lack of familiarity by end-users and other stakeholders of the benefits of alternative fuel use; and lack of codes and standards governing alternative vehicles and infrastructure. Through this Sub-program, NRCan is addressing these barriers by increasing production capacity, designing and developing education and outreach materials, and facilitating the design, development and updating of codes and standards. This Sub-program includes the following programs: ecoENERGY for Biofuels and ecoENERGY for Alternative Fuels.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
51,010,440	28,591,680	911,680

The decline in planned spending from 2015-16 to 2017-18 is primarily due to the sunsetting[12] of the ecoENERGY for Biofuels program.

Human Resources (FTEs)

2015–16	2016–17	2017–18
26	24	5

[12] Government decisions on sunsetting programs would be reflected in the Department's future Budget exercises and Estimates documents.

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Fuel producers have the capacity to produce renewable alternatives to gasoline and diesel	Number of litres of renewable alternatives to gasoline and diesel that industry has the capacity to produce	Sustain the built production capacity level of December 2012: 1,881 million litres of renewable alternative to gasoline and 555 million litres of renewable to diesel	March 31, 2017
Stakeholders (policy makers, end-users, alternative and conventional fuel producers, and vehicle and equipment manufacturers) have increased knowledge of alternative fuel pathways	Percentage of survey respondents reporting increased knowledge of alternative fuel pathways	80%	March 31, 2016
Standards community has increased ability to develop and update codes and standards related to alternative transportation fuels	Number of codes and standards committees actively working on developing and updating the codes and standards	2 until March 31, 2016	March 31, 2016

Planning Highlights

NRCan's Alternative Transportation Fuels sub-program encourages the deployment of alternative transportation fuels and builds public confidence by reducing greenhouse gas emissions and environmental impacts of energy resource development and use. Through its ecoENERGY for Alternative Fuels program, NRCan will support 3 natural gas information hubs in Montréal, Ottawa and Calgary, and 2 codes and standards committees within the Canadian Standards Association that will be developing installation codes for natural gas refueling stations and vehicles. Through the ecoENERGY for Biofuels program, NRCan will support 1,881 million litres of ethanol and 555 million litres of biodiesel built production capacity.

NRCan will also work with key stakeholders (e.g., policy makers, end-users, alternative and conventional fuel producers, and vehicle and equipment manufacturers) to increase their knowledge of alternative fuel pathways.

Sub-Program 2.1.4: *Energy Efficiency*

Description: Increasing energy efficiency reduces greenhouse gas emissions and other environmental impacts (e.g., those impacting air quality). Many Canadian energy users are unaware of the benefits of adopting energy-efficient technologies and practices. As well, regulations, codes and standards require ongoing stringency improvements because the energy efficiency of housing, buildings, and energy-using products is continually improving. Through this Sub-program, NRCan encourages the adoption of energy-efficient technologies and practices through labelling, information and training, and by making the stock of housing, buildings and energy-using products more efficient through regulation, codes, standards and energy benchmarking activities. It also makes industrial and vehicle operations more energy efficient through energy management standards, practices and training. This Sub-program includes the ecoENERGY Efficiency program.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
42,386,005	16,181,391	16,562,684

The decline in planned spending from 2015-16 to 2017-18 is primarily due to the sunsetting[13] of the ecoENERGY Efficiency program in 2016-17.

Human Resources (FTEs)

2015–16	2016–17	2017–18
226	93	93

[13] Government decisions on sunsetting programs would be reflected in the Department's future Budget exercises and Estimates documents.

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Canadians adopt NRCan-targeted energy efficient products and practices	Number of jurisdictions adopting the 2011 National Energy Code for Buildings (NECB)	4-6 provinces and territories adopting NECB or equivalent	March 31, 2016
	Number of provincial, territorial and/or utility programs using NRCan-developed housing standards and systems	12 regional programs using NRCan-developed housing standards and systems	Ongoing, to March 31, 2016
Increased energy efficiency resulting from NRCan programs	Petajoules of energy saved through energy efficiency programming	36-44 petajoules	March 31, 2016

Planning Highlights

Through its ecoENERGY Efficiency program in 2015-16, NRCan will deliver energy efficiency programing that saves Canadian consumers and businesses 36-44 petajoules of energy and $1 billion per year in 2016. The energy saved is equivalent to the energy required by 330,000 to 410,000 households over one year, excluding transportation requirements.

NRCan aims to help Canadian consumers reduce their energy costs and build public confidence by improving environmental performance and reducing wasteful energy use by better aligning energy efficiency standards with the United States via the Regulatory Cooperation Council and the prepublication of 16 products for regulation; and by offering consumers easy-to-access information and tools on how to save money by introducing improved vehicle labels for model year 2016; and by providing voluntary labelling for up to 40,000 existing and new homes; and

NRCan also aims to help Canadian businesses reduce their energy costs; improve industrial productivity and competitiveness; support energy market diversification with the promotion of products, services, and technologies; and build public confidence by improving environmental performance and reducing wasteful energy use. NRCan will (1) facilitate the registration of 9,000 buildings in the ENERGY STAR Portfolio Manager Benchmarking tool by 2016; (2) provide energy management workshop training to 1,550 industrial and building participants (on a cost-recovery basis or cost effectively) and provide training for 5,200 transportation

professionals; (3) facilitate the registration of 15,000 vehicles in the SmartWay Transport Partnership; and (4) support 5 new companies to undertake the ISO50001 energy management standard.

Program 2.2: *Technology Innovation*

Description: S&T is key to overcoming challenges confronted by natural resource sectors in pursuing responsible development. Through this Program, NRCan encourages academia, industry and the public sector to research, develop and demonstrate innovative solutions to environmental challenges. This objective is achieved through the generation and dissemination of scientific knowledge, and the development and demonstration of new technologies.

Budgetary Financial Resources (dollars)

2015–16 Main Estimates	2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
126,472,078	126,472,078	112,852,111	109,502,195

The decline in planned spending from 2015-16 to 2017-18 is primarily due to the sunsetting[14] of the ecoENERGY Innovation Initiative program in 2016-17 offset by an increase in funding for Sustainable Development Technology Canada's (SDTC) Sustainable Development Tech Fund.

Human Resources (Full-Time Equivalents [FTEs])

2015–16	2016–17	2017–18
616	517	504

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Stakeholders invest in S&T to address environmental challenges	Dollar value of stakeholder investments in S&T to address environmental challenges	5% increase over previous 5 years	March 31, 2016

[14] Government decisions on sunsetting programs would be reflected in the Department's future Budget exercises and Estimates documents.

Planning Highlights

NRCan will make targeted efforts to support the development and uptake of innovative solutions by industry stakeholders to address these environmental challenges and increase adoption of energy efficient practices. Specifically, NRCan will provide S&T expertise in the form of new materials technologies to industry. The Department will also make use of partnerships with external stakeholders, including academia and other government departments, to implement clean energy technology projects.

Sub-Program 2.2.1: *Materials for Energy*

Description: Opportunities exist to increase the energy efficiency of Canadian industry through the use of innovative materials technology in such applications as clean power generation, reliable transportation of fossil fuels, and fuel-efficient vehicles. Through this Sub-program, NRCan performs applied research and development that delivers materials and materials-processing innovations, enabling clean energy production, safe and reliable energy distribution, and more efficient use of energy in areas such as transportation, buildings and industry.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
3,867,568	3,867,547	3,867,547

Human Resources (FTEs)

2015–16	2016–17	2017–18
85	84	82

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Advanced materials technologies for new energy efficient vehicle designs are developed for industry	Number of advanced materials technologies to which NRCan contributed that have an impact on industry stakeholders products or decision making in the manufacture of energy efficient vehicles produced in North America	2 over 3 years	March 31, 2018
New materials technologies in clean power generation and safe and reliable energy distribution are developed for industry	Number of innovative materials technologies developed, contributed to, or validated by NRCan for use in power generation systems powered by nuclear, fossil or renewable energy	2 over 3 years	March 31, 2017
New materials technology or standards to transport fossil fuels effectively (safely and efficiently) are developed for industry	Number of proposed projects to transport fossil fuels more effectively (safely and efficiently) using new materials technologies or standards developed or validated by NRCan	3 over 5 years	March 31, 2017

Planning Highlights

NRCan will identify the critical parameters required for establishing a reliable fracture toughness test method of irradiated zirconium pressure-tube materials leading to the development of a national test method for material properties and to improve the safety of Canada Deuterium Uranium (CANDU) reactors.

The Department will advance one pipeline fracture toughness test standard, which will contribute to ensuring pipeline safety and integrity and protection of the environment.

NRCan will present to industry one advanced material technology to be identified for implementation in the design or processing components of energy efficient vehicles produced in North America.

Sub-Program 2.2.2: *Green Mining*

Description: The development and commercialization of technologies to reduce the impacts of mining and processing entail significant financial, market and technical risk. Through this Sub-program, NRCan develops and demonstrates innovative mining technologies and practices that eliminate or reduce environmental impacts and financial risks. These technologies and practices also expand domestic and international business opportunities for mining companies, technology developers and consultants. NRCan identifies business needs, technology gaps and priorities with input from the Canada Mining Innovation Council and an advisory committee. Applied research aims to reduce land disturbance; water, energy and hazardous chemical use; waste volumes; and releases to the environment; and to accelerate site restoration. In addition, findings contribute to the scientific, technological and socioeconomic basis for updating federal, provincial and territorial mining and environmental regulations and policies, and inform policy priorities in other countries that drive demand for technologies and services.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
7,367,535	7,259,663	7,259,663

Human Resources (FTEs)

2015–16	2016–17	2017–18
87	85	85

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved

Technology developers increase demonstration of environmental technologies	Number of demonstration projects	2 over 5 years	March 31, 2017

Planning Highlights

Environmental technologies are an important aspect of maintaining a strong and sustainable mining sector in Canada and abroad, while protecting the environment.

NRCan will therefore support responsible resource management by demonstrating key environmental technologies for green mining to industry and other stakeholders, including characterization of different types of biochar to determine the feasibility of developing productive agricultural land uses on mine waste; testing a membrane for different oil sands samples with the aim of improving water management in the oil sands industry; and developing an on-line free-falling rock sensor, which can reduce energy use in milling.

Sub-Program 2.2.3: *Clean Energy Science and Technology*

Description: New technologies help improve the environmental impacts of energy production and use. Through this Sub-program, NRCan collaborates with academia, industry and the public sector to research, develop and demonstrate innovative solutions to environmental challenges in the energy sector. The objective is for academia, industry, and the public sector to lay the foundation for the next generation of clean energy technologies and practices to reduce impacts on Canada's air, land and water. Through this Sub-program, NRCan funds, creates and advances new energy knowledge and technologies. This Sub-program includes the following programs: Clean Energy Fund, ecoENERGY Innovation Initiative, Sustainable Development Canada's (SDTC) Sustainable Development Tech Fund, SDTC's NextGen Biofuels Fund, Science and Technology Internship Program and Isotope Technology Acceleration Program.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
115,236,975	101,724,901	98,374,985

The decline in planned spending from 2015-16 to 2017-18 is primarily due to the sunsetting[15] of the ecoENERGY Innovation Initiative program in 2016-17 offset by an increase in funding for Sustainable Development Technology Canada's (SDTC) Sustainable Development Tech Fund.

Human Resources (FTEs)

2015–16	2016–17	2017–18
444	348	337

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Academia, industry and the public sector pursue clean energy S&T that reduces environmental impacts	Ratio of NRCan program investments in clean energy S&T to leveraged funding from partners	1:1 ratio	March 31, 2016

Planning Highlights

To further support environmental performance, NRCan will implement clean energy technology projects with industry, academia and other government departments and agencies to research, develop and demonstrate innovative solutions to environmental challenges in the energy sector. This includes research activities that support the responsible development and use of energy resources in areas such as clean electricity and renewables, fossil fuels, and end use.

Through its ecoENERGY Innovation Initiative, the Department will manage approximately 50 contribution agreements in energy research, development and demonstration in such areas as oil sands development; renewable energy sources, including bioenergy; energy efficiency in buildings and communities; electrification of transportation; carbon capture and storage. NRCan will improve the security of supply of medical isotopes by investing in the development of

[15] Government decisions on sunsetting programs would be reflected in the Department's future Budget exercises and Estimates documents.

alternative technologies through the Isotope Technology Acceleration Program (ITAP), in support of the Government of Canada's medical isotope strategy to diversify sources of supply, minimize radioactive waste and eliminate the use of highly enriched uranium in the production of medical isotopes.

Program 2.3: *Responsible Natural Resource Management*

Description: Greater knowledge of environmental risks and environmentally responsible practices help prevent and reduce the environmental impacts of past, present and future natural resource development. The objectives of this Program are to enable government departments, regulatory bodies and industry to assess these impacts, and to develop, monitor and maintain resources or clean up wastes responsibly. These objectives are achieved through the provision of assessments and knowledge rooted in sound science, and through waste management efforts that are undertaken in collaboration with provinces, federal agencies and municipalities.

Budgetary Financial Resources (dollars)

2015–16 Main Estimates	2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
193,117,981	193,117,981	165,816,726	133,287,595

The decline in planned spending from 2015-16 to 2017-18 is primarily due to the decreasing program profile for the Port Hope Area Initiative.

Human Resources (Full-Time Equivalents [FTEs])

2015–16	2016–17	2017–18
233	233	232

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Federal government implements waste management practices that meet modern standards for safety and environmental protection	Number of contaminated sites where the environmental impacts are reduced	7 (specifically environmental impacts reduced at Whiteshell Laboratories and Chalk River Laboratories, Glace Bay, Port Granby waste management facility, and Port Hope Welcome waste management facility, Port Hope sites and Northern Transportation Route sites)	March 31, 2016
Public and private sectors establish practices to mitigate the environmental impacts to natural resources	Number of public and private sector new or updated policies, regulations or other decision-making tools completed annually	3	March 31, 2016

Planning Highlights

Responsible management of natural resources helps to prevent the adverse environmental impacts that can result from their development. NRCan will assist industry, all levels of government and regulatory bodies in upholding environmentally responsible management practices. Specifically, NRCan will provide public geoscience information and expertise needed to support environmental assessments, to guide groundwater resource management and to better monitor cumulative environmental impacts in key resource development areas. The Department will also provide remote sensing methods, tools and data for monitoring regulatory compliance in the Alberta oil sands region and will also assist in assessing forest ecosystems reclamation activities as required.

Sub-Program 2.3.1: *Forest Ecosystems Science and Application*

Description: Forests are susceptible to climate-related changes, natural (disease) and man-made influences (harvesting, land-use changes). Sustainable development of Canada's forests requires the understanding, monitoring and assessment of forest ecosystems and their health. Science and knowledge of changing forest dynamics influence decision-making, professional practice, Canada's international reputation and market access to forest-related products. The objective of this Sub-program is to increase the overall scientific knowledge of forest ecosystems and to support knowledge-based sustainable forest management policies and practices. Through this Sub-program, NRCan conducts research, national assessments and monitoring to develop scientific knowledge of Canada's forest ecosystems. This knowledge is used by governments, industry, and non-governmental organizations for multiple purposes, including in developing forest management practices and policies, meet reporting obligations, form negotiating positions, and counter misconceptions of Canada's forest practices.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
15,180,840	15,219,368	15,165,368

Human Resources (FTEs)

2015–16	2016–17	2017–18
129	129	128

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Governments, industry, non-governmental organizations and other stakeholders are provided with scientific knowledge on forest ecosystems to support knowledge-based sustainable forest management policies and practices	Representation of the Canadian Forest Service on advisory boards or committees involving governments, industry and non-governmental organizations in order to provide scientific knowledge on forest ecosystems	Representation on advisory boards and committees stays within 10% of baseline of 100 advisory boards and committees	March 31, 2016

Planning Highlights

NRCan will conduct and synthesize science-based research on forest ecosystems to support responsible resource management in the forest sector, which will help enable more effective stewardship of forests, ultimately improving Canada's environmental reputation.

The Department will continue to develop and refine Canada's National Forest Carbon Monitoring, Accounting and Reporting System and its core Carbon Budget Model to produce estimates of forest-related carbon and greenhouse gas emissions, such as carbon dioxide emitted in metric tonnes. These estimates will be used in Canada's 2016 greenhouse gas National Inventory Report produced by Environment Canada.

NRCan will develop scientific knowledge of Canada's forest ecosystems through the National Forest Inventory in collaboration with provinces, territories and other government departments and agencies to support the Government's reporting requirements for the State of Canada's Forests report. NRCan will also make information accessible to industry and non-governmental (national and international) organizations, provinces and territories to enable the establishment of practices to mitigate the environmental impact of natural resource development.

Sub-Program 2.3.2: *Groundwater Geoscience*

Description: Groundwater provides up to 80% of rural Canada's drinking water and is an essential component of ecosystem health. In the face of growing pressures on water resources, Canada needs a consistent and coordinated approach to groundwater management. NRCan conducts groundwater mapping and assessment activities on key aquifers to better understand the extent of groundwater systems, their dynamics and vulnerability. NRCan also collaborates with its provincial partners to ensure data and approaches in different jurisdictions are harmonized. This information is disseminated through a web portal used by other departments and levels of government, planners and land-use professionals for decision making. Through this Sub-program, NRCan provides comprehensive groundwater information and expertise, which contributes to sustainable land-use decision making and groundwater management.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
3,753,180	3,753,139	3,753,139

Human Resources (FTEs)

2015–16	2016–17	2017–18
28	28	28

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Public and private sectors involved in groundwater management practices incorporate NRCan information into their products	Number of citations from public and/or private sector organizations incorporating NRCan's groundwater maps and assessments into their products (e.g., aquifer maps, plans and reports)	5	March 31, 2016

Planning Highlights

NRCan will continue progress on mapping 4 of the 30 key Canadian aquifers with an expected 25% completion target by the end of the fiscal year and develop formal partnerships with at least two provinces.

The department will increase the amount of groundwater geoscience data and scientific products available by 5% via the Groundwater Information Network portal thus further enabling clients and stakeholders to carry out their groundwater research and meet management needs.

Sub-Program 2.3.3: *Environmental Studies and Assessments*

Description: Government departments, regulatory bodies and industry require science-based information to inform environmental assessment and regulatory decisions, guide the planning of natural resource developments and minimize related environmental impacts. Through this Sub-program, NRCan provides scientific and technical information and advice necessary for environmental assessments conducted under the Canadian Environmental Assessment Act 2012 and northern legislation, to inform regulatory decisions and to address the environmental risks of major resource projects like the oil sands. It also informs the process of designating new federal parks and protected areas on federal lands with the identification of mineral and energy resource potential.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
5,994,693	5,994,696	5,994,694

Human Resources (FTEs)

2015–16	2016–17	2017–18
44	45	45

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Governments, regulatory bodies, industry and the public access sound environmental geoscience information	Number of citations from public and/or private sector organizations incorporating NRCan's environmental geoscience information into their products	5 per year	March 31, 2016
Informed environmental assessments	The number of major projects where NRCan scientific and technical experts were engaged over the number of projects where NRCan expertise was requested for environmental assessments, expressed as a percentage (major projects is defined as those tracked by the MPMO/Northern Projects Management Office)	90%	March 31, 2016

Planning Highlights

NRCan will provide scientific expertise related to and review mine waste management and geochemistry for mining projects, as well as other projects with acidic drainage and/ or metal leaching concerns.

The Department will meet, in a timely manner, 90% of the requests for geoscience expertise needed to support environmental assessments under the *Canadian Environmental Assessment Act (2012)* and northern legislation and for Mineral and Energy Resource Assessment requirements.

NRCan will release information on the most recent research results on the effects of hydraulic fracturing on shallow aquifers and induced seismicity for use by different public and private organizations.

Sub-Program 2.3.4: *Radioactive Waste Management*

Description: Requirements to protect the environment or human health when managing radioactive waste were less stringent in the past than they are today. In some cases, historic nuclear or uranium mining activities resulted in a legacy of radioactive waste or contaminated lands that pose risks to the environment and/or the health of Canadians. Through this Sub-program, NRCan develops policy and programs to establish long-term management solutions for radioactive waste in areas where federal intervention is required. Specifically, NRCan is involved in clean-up operations in cases where the wastes were either produced by a Crown corporation, or the original private sector producer no longer exists or cannot be held responsible. NRCan also develops knowledge and innovative technologies in support of responsible radioactive waste management and clean up. This Sub-program includes the Nuclear Legacy Liabilities Program and the following programs: the Property Value Protection Program, the Municipal Tax Revenue Loss Protection Program, the Historic Waste Program, including the Port Hope Area Initiative and the Gunnar mine site rehabilitation Program.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
167,079,668	139,739,923	107,264,794

The decline in planned spending from 2015-16 to 2017-18 is primarily due to the decreasing program profile for the Port Hope Area Initiative.

Human Resources (FTEs)

2015–16	2016–17	2017–18
27	27	27

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
The federal government manages (develops and implements) long-term management solutions to clean up radioactive waste	Percentage implementer compliance with applicable Canadian Nuclear Safety Commission institutional controls and/or licences to carry-out management practices	100%	March 31, 2022
	Percentage of decommissioning and radioactive waste management milestones completed under the Nuclear Legacy Liabilities Program	80%	March 31, 2016
	Percentage of waste management obligations achieved under the Port Hope Area Initiative Legal Agreement for each project	100%	March 31, 2022

Planning Highlights

The Nuclear Legacy Liabilities Program will complete activities to support the transition of nuclear decommissioning and waste management responsibilities at the Nuclear Laboratories to the Government-owned, Contractor-operated management model.

The Department—in partnership with provinces, municipalities, and the private sector—will continue its work to mitigate the risks of radioactive wastes to the environment and human health through the Radioactive Waste Management programs. The Nuclear Legacy Liabilities Program implements long-term management solutions for the clean-up of radioactive wastes or contaminated lands at Atomic Energy of Canada Limited sites and the Historic Waste programs deal with low-level radioactive wastes arising across Canada for which neither the producer nor the current owner can reasonably be held responsible.

To support nuclear waste management, the Department will complete the commissioning and continue operations of new water treatment plants at the New Port Hope and Port Granby facilities and start construction for the new Long-term Waste Management Facility for the Port Granby Project. The Department also expects to tender and issue a contract for construction of the Port Granby Long-Term Waste Management Facility.

Sub-Program 2.3.5: *Earth Observation for Responsible Resource Development*

Description: Effective regulatory frameworks depend on environmental monitoring information and tools. Through this Sub-program, NRCan provides Earth observation and geospatial data and tools on oil and gas-concentrated regions in Canada, such as the North and the Alberta oil sands. It informs the identity of baseline conditions for various environmental components (land, water, vegetation) and the cumulative effect of natural resource development, and can guide decision-making on proposed mitigation options. This increases the capacity for regulation that could help prevent and reduce impacts to the environment in these key areas.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
1,109,600	1,109,600	1,109,600

Human Resources (FTEs)

2015–16	2016–17	2017–18
5	4	4

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Governments, regulatory compliance monitoring bodies and industry use Earth observation scientific information (i.e., value-added datasets and publications) to support responsible resource development practices	Number of methods, value-added products and/or demonstration products used by government regulatory bodies and/or industry	5	March 31, 2016

Planning Highlights

To support responsible resource development in the regions, NRCan provides remote sensing methods, tools and data for regulatory compliance monitoring. In 2015-16, NRCan will release a national-scale permafrost dataset with moderate resolution and deliver a final technical report evaluating the use of earth observation technology in support of improved regulatory monitoring and environmental performance in the Alberta oil sands region.

Strategic Outcome 3: Canadians have Information to Manage their Lands and Natural Resources and are protected from Related Risks

Description: It is through only a deep and expansive understanding of Canada's lands and natural resources so that today's decision-makers can determine the right choices for tomorrow – choices that keep Canada's lands and natural resources properly managed and safeguarded. This deep and expansive understanding requires expertise and technology. The objective of this strategic outcome is achieved by providing this expertise and technology, enabling a) the management of risks to human, natural resource, and infrastructure health and b) the use of landmass knowledge.

Program 3.1: *Protection for Canadians and Natural Resources*

Description: Natural resource development and changes in the environment pose risks to human, natural resource and infrastructure health. The objective of this Program is to enable other government departments, communities, and the private sector to manage these risks and to ensure the appropriate capacity is in place. NRCan achieves this objective by providing regulation, knowledge, tools and services and by fulfilling legislated responsibilities.

Budgetary Financial Resources (dollars)

2015–16 Main Estimates	2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
58,672,639	58,672,639	59,053,121	51,531,732

The decline in planned spending from 2015-16 to 2017-18 is primarily due to the Climate Change Impacts and Adaptations program which sunsets[16] in 2015-16 as well as the variation in

[16] Government decisions on sunsetting programs would be reflected in the Department's future Budget exercises and Estimates documents.

planned spending related to the funding profile of the Earthquake Monitoring program which increases in 2016-17.

Human Resources (FTEs)

2015–16	2016–17	2017–18
456	436	428

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Governments, communities and the private sector manage risks or opportunities to natural resources, infrastructure, and human health	Number of active collaborations with the public and private sector that manage risks or opportunities to human population, natural resources and infrastructure health	6 collaboration agreements	March 31, 2016
	Number of risk assessments (climate change, hazards, other), policies, standards or guidelines developed using NRCan information or services	5	March 31, 2016

Planning Highlights

NRCan will collaborate with other government departments, industry and communities as well as carry out compliance and outreach activities and share geoscience expertise to address existing risks (e.g., forest pests, wildland fire) as well as anticipate and identify impacts relating to climate change and emergency management.

Sub-Program 3.1.1: *Explosives Safety and Security*

Description: Explosives are essential for many economic activities but are inherently dangerous. Strict controls are needed to protect Canadians from incidents that could result in death or serious injury, and economic and environmental harm. Through this Sub-program, NRCan administers and enforces the Explosives Act and associated regulations, which govern the manufacture, importation, transportation, sale, distribution and storage of explosives. This includes fireworks and pyrotechnics, and the sale of materials that can be used to produce explosives. Through this Sub-program, NRCan conducts compliance promotion, outreach, inspections, investigations and enforcement of the Act and regulations. It also tests and develops policies, procedures, guidelines, rules and standards, and supplies expertise to other federal government organizations and law enforcement agencies.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
5,101,103	4,704,396	4,246,703

Human Resources (FTEs)

2015–16	2016–17	2017–18
62	63	60

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Regulated establishments' compliance with regulatory requirements is monitored and enforced to protect Canadians from the dangers of explosives	Number of explosives inspections completed	600	March 31, 2016

Planning Highlights

NRCan will conduct inspections on explosives safety and security. Previously in 2014-15, 70% of inspections were rated satisfactory or better. In 2015-16, the aim will be to maintain that 70% compliance rate and improve compliance as the new, modernized Explosives Regulations, 2013, are being implemented. This goal will be supported by ongoing outreach activities with industry. NRCan will also implement new regulations on security screening for individuals with access to high-risk explosives. New regulations are coming into force on February 1, 2015, and will affect all manufacturing and explosives vendor magazine licences.

Sub-Program 3.1.2: *Materials and Certification for Safety and Security*

Description: Materials are engineered and fabricated for specific applications and environments. Defects in equipment or structures can cause failures that result in death, serious injury, and economic and environmental damage. Non-destructive testing helps to ensure the integrity of safety-critical components in aircraft, boilers and pressure vessels, bridges, buildings, cranes, heavy equipment, nuclear reactors, pipelines and other applications. Several federal regulators and other authorities require non-destructive testing to be performed by inspectors certified according to a national standard. Through this Sub-program, NRCan certifies individuals to this national standard, which is aligned with international standards. NRCan also develops materials solutions to provide increased protection to Canadian Forces personnel and assets, specifically protecting light military vehicles and occupants from the effects of improvised explosive devices, and dismounted soldiers and law enforcement personnel against projectiles and fragmentation devices.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
1,222,498	1,222,498	1,222,498

Human Resources (FTEs)

2015–16	2016–17	2017–18
15	14	11

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Individuals are certified to perform non-destructive testing to a national standard	Number of valid and active certifications maintained by NRCan (certifications are currently offered in multiple methods and individuals are typically certified in more than one method and/or sector)	12,000	March 31, 2016

Planning Highlights

NRCan will maintain the safety of the public and infrastructure by certifying individual inspectors performing non-destructive testing (NDT) to a national standard. The NRCan National NDT Certification Body located at CanmetMATERIALS in Hamilton has an annual goal of certifying more than 4,800 individuals.

Sub-Program 3.1.3: *Forest Disturbances Science and Application*

Description: Increased scientific knowledge is required in Canada to understand, forecast, mitigate and adapt to natural and human-induced impacts on forest ecosystems. Through this Sub-program, NRCan conducts research and analysis to develop scientific knowledge of forest disturbances (e.g., pests, fire). This scientific knowledge is used by federal, provincial and territorial governments and agencies (both policy makers and regulators) as well as the forest industry to assess risks, forecast impacts and develop mitigation and adaptation strategies related to pests, fire, and climate change. This Sub-program includes the following programs: Invasive Alien Species Strategy for Canada, and Climate Change Adaptation program.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
28,352,881	27,346,447	27,448,447

Human Resources (FTEs)

2015–16	2016–17	2017–18
233	229	228

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Governments, agencies and industry are provided with scientific knowledge on forest disturbances to assess risks, and develop mitigation and adaptation strategies	Representation of the Canadian Forest Service on advisory boards or committees involving governments, industry, and non-governmental organizations in order to provide scientific knowledge on forest disturbances	Representation on advisory boards and committees stays within 10% of baseline. Baseline is 73 advisory boards and committees.	March 31, 2016

Planning Highlights

The Department will advance the National Forest Pest Strategy of the Forest Pest Working Group of the Canadian Council of Forest Ministers by updating strategic S&T priorities for the next 5 years, and by following up on a Deputy Minister's workshop on Forest Invasive Alien Species hosted by Ontario in January 2015.

NRCan will also contribute science to help slow the eastward spread of Mountain Pine Beetle and advance early intervention strategies for emerging outbreaks of spruce budworm in eastern Canada.

NRCan will generate and disseminate a series of adaptation knowledge products, including national-scale tools (Adaptation Toolkit), historical trends and projections for a series of indicators of climate change impacts (Tracking System) and policy relevant information resulting from an integrated assessment of the implications of climate change on Canada's forests and forest sector, using a range of future climate scenarios.

The Department will advance the Canadian Wildland Fire Strategy with the development of a new strategic direction through to 2020 for the Wildland Fire Management Working Group of the Canadian Council of Forest Ministers, and produce an implementation plan to advance prevention activities and the development of a national fire response plan.

Sub-Program 3.1.4: *Climate Change Adaptation*

Description: Developing and sharing of information, as well as cooperation among multiple decision makers, are required to successfully plan for and manage the risks and opportunities resulting from a changing climate. Through this Sub-program, NRCan delivers an Adaptation Platform, which brings together national industry and professional organizations, federal, provincial and territorial governments, and other organizations to collaborate on shared adaptation priorities. It also delivers scientific analysis on climate change geoscience issues affecting Canada's North (North of 60 latitude) such as resource development and infrastructure. This facilitates the production and exchange of knowledge and tools that help decision makers understand the implications of a changing climate on their operations, and equips them with the tools and information needed to effectively adapt. This Sub-program includes the Enhancing Competitiveness in a Changing Climate program.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
7,820,495	2,873,589	2,873,589

The decline in planned spending from 2015-16 to 2017-18 is primarily due to the Climate Change Impacts and Adaptations program which sunsets[17] in 2015-16.

[17] Government decisions on sunsetting programs would be reflected in the Department's future Budget exercises and Estimates documents.

Human Resources (FTEs)

2015–16	2016–17	2017–18
37	24	24

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Key stakeholders across Canada have access to new knowledge on risks and opportunities resulting from a changing climate for decision-making	Number of new knowledge products released	10 per year	March 31, 2016

Planning Highlights

NRCan will deliver public geoscience, tools, information and knowledge to federal and territorial governments to increase their understanding of changes to the climate and how they impact northern infrastructure requirements and constraints, such as those imposed by changes to permafrost.

Through the national climate change Adaptation Platform, the department will continue to collaborate with the provinces, territories, and the public and private sectors to develop and exchange knowledge and tools on thematic areas, including forestry, mining, energy and coastal management that will help Canada's regions and the natural resource sectors adapt to a changing climate.

Sub-Program 3.1.5: *Geohazards and Public Safety*

Description: To enhance the protection of Canadians from natural hazards, constant monitoring of, and effective planning for, adverse natural events are required. Such events include earthquakes, volcanic eruptions, landslides, geomagnetic storms, radiological and nuclear incidents, and tsunamis. Through the provision of hazard information and products, NRCan helps other levels of government, including international government bodies, as well as the private sector and professional organizations such as the Canadian Institute of Planners to prepare for and mitigate natural disasters. This work also meets NRCan's obligation for ongoing nuclear test monitoring under the Comprehensive Nuclear Test Ban Treaty. This Sub-program

comprises a research component, which disseminates risk-related information to support the response, recovery and preparedness phases of emergency management.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
16,175,662	22,906,191	15,740,495

The variation in planned spending from 2015-16 to 2016-17 to 2017-18 is primarily related to the funding profile of the Earthquake Monitoring program which increases in 2016-17.

Human Resources (FTEs)

2015–16	2016–17	2017–18
109	106	105

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Governments, private sector and regulatory bodies access NRCan's hazard information, products and services	Number of requests for NRCan geohazard information, knowledge products or services by government, private sector, including media, and professional organizations in Canada	50 per year	March 31, 2016

Planning Highlights

NRCan will collaborate in the interdepartmental Tsunami Notification Networking Group and in the multi-stakeholder Early Warning System Initiative to ensure that geohazards expertise, tools and resources (including seismic hazard models and methodologies, plate boundary-based research, post-event rupture mechanism assessment, and risk assessment tools) are made available to stakeholders.

The Department will deliver alerts through its hazards information service pertaining to earthquakes so that notifications are sent for all earthquakes larger than magnitude 5.0 within five minutes.

NRCan will participate in the development and execution of interdepartmental emergency management plans and exercises so that federal response to a volcanic event in Canada is validated as aligned with standard emergency management practice.

Program 3.2: *Landmass Information*

Description: Public, academic and private sectors as well as Canadians rely on up-to-date, comprehensive and accessible landmass information to make sound socio-economic and environmental decisions. This Program provides open access to Canada's fundamental geomatics framework and information system, including accurate three-dimensional positioning, high-resolution satellite imagery and other remote sensing products, legal (boundary) surveys, mapping and other analysis applications. In addition, it delivers logistics support in the North and regulatory oversight for a robust property system framework on Canada Lands.

Budgetary Financial Resources (dollars)

2015–16 Main Estimates	2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
71,155,143	71,155,143	51,472,071	50,602,011

The decline in planned spending from 2015-16 to 2017-18 is primarily related to the declining funding profile of the United Nations Convention on the Law of the Sea program.

Human Resources (Full-Time Equivalents [FTEs])

2015–16	2016–17	2017–18
420	419	410

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Polar Continental Shelf Program (PCSP) clients receive cost-effective logistics support needed to conduct field work safely in Canada's Arctic and Sub-arctic regions	Level of client satisfaction with mix, quality and cost of support received	85% of clients are either satisfied or very satisfied	March 31, 2016
Public, private sector and academia use accurate, Government of Canada geo-information for decision-making	Number of public sector, private sector or academic organizations using accurate geo-information for decision-making	10 federal departments or agencies, 5 private sector companies and 3 academic organizations	March 31, 2016
	Pieces of evidence identifying that the Canada Lands Survey System activities are meeting stakeholder needs	1 piece each from First Nations, other government departments and industry for the Canada Lands Survey System 1 piece from an international boundary stakeholder	March 31, 2017

Planning Highlights

Accurate, authoritative landmass information is necessary to support decision-making related to the management of Canada's natural resources and lands. NRCan will continue to collect, manage and process geodetic, geomatics and earth observation data for dissemination to the public, private industry, and federal, provincial and territorial governments, to contribute toward evidence-based decision-making on the management of Canada's natural resources and lands, including its emergency response systems.

Sub-Program 3.2.1: *Essential Geographic Information*

Description: Many socio-economic and environmental decisions made by the public, academia and private sector (e.g., emergency preparedness and response, land-use, elections planning, transportation and real estate) rely on up-to-date, comprehensive and accessible landmass information. Through this Sub-program, NRCan ensures open access to Canada's fundamental geomatics framework and information system, including accurate three-dimensional positioning,

high-resolution satellite imagery and other remote sensing products, mapping and other analysis applications that are accurate, authoritative and assured. This essential geographic information enables sound socio-economic and environmental decisions, which support the effective management of Canada's natural resources and lands.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
29,124,913	29,073,830	29,088,830

Human Resources (FTEs)

2015–16	2016–17	2017–18
273	272	271

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Public, private sector and academia access authoritative, reliable and accurate geodetic, geographic and geospatial information for the management of natural resources and lands	Number of times geodetic, geographic and geospatial information (geo-information), tools and services are accessed (e.g., pages viewed, total visits, downloads)	5% annual increase from 2013-14	March 31, 2016
	Percentage of NRCan's total dataset repository updated annually	15%	March 31, 2016

Planning Highlights

NRCan will provide up-to-date, authoritative geographic information to the public, private industry, and federal, provincial and territorial governments including:

- Through the Geographical Names Board of Canada's new Strategic Plan, collaborate with provinces, territories and other federal departments to provide expert advice pertaining to

decisions, standards, principles, procedures and changes to Canada's place names, thereby enhancing accessibility to data and information on authoritative geographical names.
- The Canada Centre for Geospatial Information will update its data processing and dissemination operations, including the adaptation of web services, to support the anticipated launch of the Federal Geospatial Platform.
- Provide near-real-time flood extent mapping products and services, derived from geoprocessing of Radarsat-2 and ancillary information, to emergency management organizations, supporting Canada's coordinated efforts to respond to emergencies.
- Support the Canada Space Agency in completing the federal evaluation and final report on the new capabilities of Canada's RADARSAT Constellation Mission set for launch in 2018-19.
- Implement the business model for the newly revitalized NRCan satellite infrastructure, increase partnerships with domestic and international organizations, and ensure the collection and dissemination of satellite imagery through the Earth Observation Data Management System.

In addition, NRCan will carry out, in cooperation with Fisheries and Oceans Canada and the United States, its first phase of work to support the update of the International Great Lakes Datum (IGLD). The IGLD is the special vertical reference datum used as the basis for monitoring and managing water levels in the Great Lakes for navigation safety, international treaties and regulation. A new IGLD reference system is required approximately every 25 to 30 years to correct for differential movement of the earth's crust caused by post-glacial rebound in the Great Lakes region. The last update was 'IGLD 1985' which was implemented in 1992. It was based on the North American Vertical Datum of 1988 and water level measurements from 1982 to 1988 (average epoch 1985, hence the name IGLD 1985).

Sub-Program 3.2.2: *Canada's Legal Boundaries*

Description: Boundary uncertainty undermines public confidence in the property rights system and is a barrier to exercising property and sovereign rights, as well as responsible social and economic development. For the benefit of all Canadians, NRCan ensures boundary certainty through the proper maintenance of the Canada-US international boundary for law enforcement, land administration, customs and immigration, and transboundary resource management; effective boundary surveys of Aboriginal settlement lands to meet Canada's obligations under land claim settlement legislation and treaties; and statutory registration of legal surveys on Canada Lands (the North, Canada's offshore area, Aboriginal Lands and National Parks), essential to the creation of legal property boundaries. The boundary certainty provided by NRCan through this Sub-program enables effective management of Canada lands and

collaboration across jurisdictions, which advance the interests of Canada's natural resource sectors, both domestically and internationally.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
13,116,615	12,361,968	12,361,968

Human Resources (FTEs)

2015–16	2016–17	2017–18
104	102	101

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Statutory obligations, including interdepartmental commitments, are achieved in support of boundary certainty for Canada (including the Canada-US boundary) and First Nation Lands	Percentage completion of Canadian obligations for Canada-US boundary maintenance requirements established in the semi-annual Commissioners' Meeting Records of Decision	100%	March 31, 2016
	Percentage of statutory obligations and interdepartmental commitments achieved as defined in the legislation and agreements for Canada and First Nation lands	100%	March 31, 2016

Planning Highlights

NRCan will complete 100% of annual survey obligations as defined in land claim legislation and agreements for Northern Canada and for First Nations Land Management and Additions to Reserves in southern Canada. This work will help ensure boundary certainty and accuracy for First Nations and other Canadians living in those areas.

NRCan will carry out the next stages in its implementation of electronic approvals and official registration of legal survey plans for the Canada Lands Survey System. This will include its introduction with the Nunavut Land Titles Office.

NRCan will expand oil and gas grid applications to increase coverage over the continental shelf.

Sub-Program 3.2.3: *Polar Continental Shelf Logistics Support*

Description: Researchers in Canada's Arctic and Sub-arctic regions need safe, efficient and cost-effective field logistics support because of the remoteness, harsh weather, and high cost of working in those regions. Through its Polar Continental Shelf Program (PCSP), NRCan coordinates logistics for Canadian government agencies, provincial, territorial and northern organizations, universities and independent groups conducting research, particularly in Canada's North. Through this work, NRCan supports science and government priorities and contributes to the exercise of Canadian Arctic sovereignty. PCSP services include air transportation to and from remote field camps throughout the Canadian Arctic, field equipment and vehicles across Canada, and fuel for aircraft, equipment and camps. They also include meals, accommodations and working space (including a multi-purpose laboratory) at the PCSP facility in Resolute, NU, and a communications network that links the PCSP with science teams in field camps dispersed throughout the Canadian Arctic.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
8,973,148	8,351,137	8,649,803

Human Resources (FTEs)

2015–16	2016–17	2017–18
32	34	34

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved

Canadian Arctic researchers and federal government departments and agencies receive the requested PCSP field logistics support	Percentage of valid requests for logistics support supported by PCSP	95%	March 31, 2016

Planning Highlights

NRCan will provide requested logistics to more than 100 research projects from government departments, the Canadian High Arctic Research Station, and universities conducting scientific research in the Arctic. In collaboration with the Department of National Defence, NRCan will host at least four Canadian Armed Forces Arctic Training Centre program activities.

Sub-Program 3.2.4: *United Nations Convention on the Law of the Sea*

Description: Ratification of the United Nations Convention on the Law of the Sea requires Canada to submit the case for extending the outer limits of its offshore beyond 200 nautical miles to the UN Commission on the Limits of the Continental Shelf. Through this Sub-program, NRCan conducts seabed and seismic surveys to compile accurate coordinates on the limits of the continental shelf area, as well as to support Foreign Affairs and International Trade Canada with the presentation, interpretation and defence of the scientific evidence included in the formal submission. If successful in defending the case, Canada will secure international recognition for this precisely determined extended area over which it may exercise sovereign rights over the natural resources of the seabed and subsoil.

Budgetary Financial Resources (dollars)

2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
19,940,467	1,685,136	501,410

The decline in planned spending from 2015-16 to 2017-18 is primarily related to the declining funding profile of the United Nations Convention on the Law of the Sea program.

Human Resources (FTEs)

2015–16	2016–17	2017–18
11	11	4

Performance Measurement

Expected Results	Performance Indicators	Targets	Date to be Achieved
Department of Foreign Affairs, Trade and Development (DFATD) presents a comprehensive, scientifically sound report for Canada's claim to the Commission on the Limits of the Continental Shelf beyond 200 nautical miles	Percentage of necessary scientific and technical data and analysis delivered to DFATD for the presentation of Canada's claim to the Commission on the Limits of the Continental Shelf beyond 200 nautical miles	100%	March 31, 2018

Planning Highlights

NRCan will continue to collaborate with the departments of Fisheries and Oceans, and Foreign Affairs, Trade and Development and international partners to acquire scientific data for successful completion of the second survey mission to the Arctic Ocean.

In collaboration with the departments of Fisheries and Oceans and Foreign Affairs, Trade and Development, the Department will finalize scientific data on the Atlantic Ocean and record key decision points and coordinates, as well as engage in formal collaboration with neighbouring states (US) over publication and data sharing.

4.1 Internal Services

Description: Internal Services are groups of related activities and resources that are administered to support the needs of programs and other corporate obligations of an organization. These groups are: Management and Oversight Services; Communications Services; Legal Services; Human Resources Management Services; Financial Management Services; Information Management Services; Information Technology Services; Real Property Services; Materiel Services; Acquisition Services. Internal Services include only those activities and resources that apply across an organization and not to those provided specifically to a program.

Budgetary Financial Resources (dollars)

2015–16 Main Estimates	2015–16 Planned Spending	2016–17 Planned Spending	2017–18 Planned Spending
142,789,148	142,789,148	128,635,058	125,778,010

The decline in planned spending from 2015-16 to 2017-18 is primarily related to the internal services portion of various declining or sunsetting[18] programs.

Human Resources (FTEs)

2015–16	2016–17	2017–18
985	985	981

Planning Highlights

NRCan will support the Government in playing a leadership role internationally to deter corruption and to enhance transparency and accountability, delivering on the Prime Minister's commitment to implement mandatory reporting standards for the extractive sector beginning in June 2015.

The Department will identify opportunities for the integration of requirements from the Open Government Directive into NRCan's S&T policies and reporting.

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[18] Sunsetting programs are subject to government decisions to extend, reduce, or enhance funding. Outcomes of such decisions would be reflected in the Department's future Budget exercises and Estimates documents.

The Department will continue to deliver its Science Promotion Strategy to expand reach of its science by using partnerships and using new media tools to deliver information on NRCan science and research activities. This includes working with media and stakeholders to profile NRCan science and programs, continued proactive regional media outreach, expanded use of social media, creation of multi-platform content, creation of media-friendly content on existing NRCan platforms and making scientists available for proactive media opportunities. The Department will also document and track NRCan's Signature S&T projects, including the introduction of a performance measurement framework to better assess and convey the relevance, quality and impact of NRCan's S&T expertise.

The Access to Information and Privacy program (ATIP) secretariat will continue to develop and implement renewed procedures to transition to increased electronic processes for ATIP requests, making full use of electronic repositories, such as the GCDOCS information management system.

The Department's Science and Computing Task Team will assess specific computing needs required to improve science computing capabilities. The business case and requirements for an integrated approach to scientific computing will be completed by April 2015.

NRCan will continue to support the Clerk's Blueprint 2020 vision through a range of initiatives across NRCan focused on advancing a culture of innovation, nurturing talent development, creating an enabling environment and strengthening science, policy and program entrepreneurship. For example, NRCan's Innovation Hub is working with business owners to scale up NRCan's upward feedback tool, to launch the 2.0 version of NRCan's micro-assignment platform, and to enhance departmental capacity on new policy instruments.

NRCan will continue to implement the Government of Canada's Web Renewal Initiative in accordance with direction from the Treasury Board Secretariat.

NRCan will develop training tools and strategies to assist managers in deploying Intellectual Property (IP), as well as monitor NRCan's IP portfolio through an annual survey.

NRCan will continue to modernize IT infrastructure by migrating some of its current applications to Shared Services Canada Enterprise Data Centres, and in the process equip itself with more modern, more resilient, and more secure IT infrastructure. The Department will review and implement a new IT governance structure to ensure the protection and security of its IT assets against a rapidly evolving cyber threat environment. NRCan will enhance its cyber security technologies, working closely with Shared Services Canada and other partners. In addition, NRCan will implement the Shared Services Canada Cost Effective Telephony and the Email Transformation initiatives to achieve substantial savings on telephony and data centres.

As the department continues to implement key government-wide initiatives such as the Performance Management program for employees and GCDOCS, it will focus its first full year post implementation on change management and improving performance.

The Department will revisit its building emergency procedures, and will enhance physical security to better protect its employees and assets.

Under the NRCan Booth Street Complex (BSC) Project, the Department will analyze appropriate accommodations for program activities currently housed at the BSC, as well as Earth Materials Collections housed at Tunney's Pasture.

Additionally, NRCan is a participant in the 2013-16 Federal Sustainable Development Strategy and contributes to the Theme IV (Greening Government Operations) targets through the internal services program. The department plans to:

- Reduce the departmental greenhouse gas emissions from its buildings and fleet by 17% below 2005 levels by 2020;
- Achieve an industry-recognized level of high environmental performance in Government of Canada real property projects and operations;
- Take action to embed environmental considerations into public procurement, in accordance with the federal Policy on Green Procurement;
- Develop an approach to maintain or improve the sustainability of its workplace operations;
- Establish SMART targets to reduce the environmental impact of its services to clients; and
- Take further action to improve water management within its real property portfolio.

Additional details on NRCan's activities can be found in the Greening Government Operations Supplementary Information Table.

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Section III: Supplementary Information

Consolidated Future-Oriented Statement of Operations

The consolidated future-oriented condensed statement of operations provides a general overview of Natural Resources Canada's operations. The forecast of financial information on expenses and revenues is prepared on an accrual accounting basis to strengthen accountability and to improve transparency and financial management.

Because the consolidated future-oriented condensed statement of operations is prepared on an accrual accounting basis, and the forecast and planned spending amounts presented in other sections of the Report on Plans and Priorities are prepared on an expenditure basis, amounts differ.

A more detailed consolidated future-oriented statement of operations and associated notes, including a reconciliation of the net cost of operations to the requested authorities, can be found on NRCan website[xviii].

Consolidated Future-Oriented Condensed Statement of Operations For the Year Ended March 31 (dollars)

Financial Information	2014–15 Estimated Results	2015–16 Planned Results	Difference
Total expenses	2,354,747,699	2,190,166,694	(164,581,005)
Total revenues	27,940,141	35,079,370	7,139,229
Net cost of operations	2,326,807,558	2,155,087,324	(171,720,234)

The decrease of $172M between years can be mainly explained by:

- an increase in Statutory Programs – Atlantic Offshore due to fluctuations in oil and gas prices, production levels, exchange rates and operators' costs; offset by

- a decrease in Energy-efficient Practices and Lower-carbon Energy Sources due in most part to reductions in the funding profile under the ecoENERGY for Biofuels Program and the Wind Power Program;
- a decrease in Responsible Natural Resource Management related in most part to a decrease in expenses under the Nuclear Legacy Liabilities Program as this program sunsets in March 2015 and also a decrease in remediation expenses under the Port Hope Area Initiative; and
- a decrease under Internal Services related in most part to a variation in expenses under the Stakeholder Engagement and Outreach Campaign as this program sunsets in March 2015.

The revenues remain comparable between years.

The charts presenting the distribution by program of Natural Resources Canada's total estimated expenses for 2014-2015 and planned expenses for 2015-2016 on an accrual basis are available on the NRCan website[xix].

List of Supplementary Information Tables

The supplementary information tables listed in the *2015-16 Report on Plans and Priorities* can be found on NRCan's website.

- Details on Transfer Payment Programs;
- Disclosure of TPPs under $5 million;
- Up-Front Multi-Year Funding;
- Greening Government Operations;
- Upcoming Internal Audits and Evaluations over the next three fiscal years; and
- User Fees.

Tax Expenditures and Evaluations Report

The tax system can be used to achieve public policy objectives through the application of special measures such as low tax rates, exemptions, deductions, deferrals and credits. The Department of Finance Canada publishes cost estimates and projections for these measures annually in the *Tax Expenditures and Evaluations*[xx] publication. The tax measures presented in the ***Tax Expenditures and Evaluations*** publication are the responsibility of the Minister of Finance.

Section IV: Organizational Contact Information

Natural Resources Canada

580 Booth Street

Ottawa, Ontario

K1A 0E4

Canada

Appendix: Definitions

appropriation: Any authority of Parliament to pay money out of the Consolidated Revenue Fund.

budgetary expenditures: Include operating and capital expenditures; transfer payments to other levels of government, organizations or individuals; and payments to Crown corporations.

Departmental Performance Report: Reports on an appropriated organization's actual accomplishments against the plans, priorities and expected results set out in the corresponding Reports on Plans and Priorities. These reports are tabled in Parliament in the fall.

full-time equivalent: Is a measure of the extent to which an employee represents a full person-year charge against a departmental budget. Full-time equivalents are calculated as a ratio of assigned hours of work to scheduled hours of work. Scheduled hours of work are set out in collective agreements.

Government of Canada outcomes: A set of 16 high-level objectives defined for the government as a whole, grouped in four spending areas: economic affairs, social affairs, international affairs and government affairs.

Management, Resources and Results Structure: A comprehensive framework that consists of an organization's inventory of programs, resources, results, performance indicators and governance information. Programs and results are depicted in their hierarchical relationship to each other and to the Strategic Outcome(s) to which they contribute. The Management, Resources and Results Structure is developed from the Program Alignment Architecture.

non-budgetary expenditures: Include net outlays and receipts related to loans, investments and advances, which change the composition of the financial assets of the Government of Canada.

performance: What an organization did with its resources to achieve its results, how well those results compare to what the organization intended to achieve and how well lessons learned have been identified.

performance indicator: A qualitative or quantitative means of measuring an output or outcome, with the intention of gauging the performance of an organization, program, policy or initiative respecting expected results.

performance reporting: The process of communicating evidence-based performance information. Performance reporting supports decision making, accountability and transparency.

planned spending: For Reports on Plans and Priorities (RPPs) and Departmental Performance Reports (DPRs), planned spending refers to those amounts that receive Treasury Board approval by February 1. Therefore, planned spending may include amounts incremental to planned expenditures presented in the Main Estimates.

A department is expected to be aware of the authorities that it has sought and received. The determination of planned spending is a departmental responsibility, and departments must be able to defend the expenditure and accrual numbers presented in their RPPs and DPRs.

plans: The articulation of strategic choices, which provides information on how an organization intends to achieve its priorities and associated results. Generally a plan will explain the logic behind the strategies chosen and tend to focus on actions that lead up to the expected result.

priorities: Plans or projects that an organization has chosen to focus and report on during the planning period. Priorities represent the things that are most important or what must be done first to support the achievement of the desired Strategic Outcome(s).

program: A group of related resource inputs and activities that are managed to meet specific needs and to achieve intended results and that are treated as a budgetary unit.

Program Alignment Architecture: A structured inventory of an organization's programs depicting the hierarchical relationship between programs and the Strategic Outcome(s) to which they contribute.

Report on Plans and Priorities: Provides information on the plans and expected performance of appropriated organizations over a three-year period. These reports are tabled in Parliament each spring.

results: An external consequence attributed, in part, to an organization, policy, program or initiative. Results are not within the control of a single organization, policy, program or initiative; instead they are within the area of the organization's influence.

Strategic Outcome: A long-term and enduring benefit to Canadians that is linked to the organization's mandate, vision and core functions.

sunset program: A time-limited program that does not have an ongoing funding and policy authority. When the program is set to expire, a decision must be made whether to continue the program. In the case of a renewal, the decision specifies the scope, funding level and duration.

target: A measurable performance or success level that an organization, program or initiative plans to achieve within a specified time period. Targets can be either quantitative or qualitative.

whole-of-government framework: Maps the financial contributions of federal organizations receiving appropriations by aligning their Programs to a set of 16 government-wide, high-level outcome areas, grouped under four spending areas.

Endnotes

[i] Atomic Energy of Canada Ltd, http://www.aecl.ca/en/home/default.aspx

[ii] National Energy Board, http://www.neb.gc.ca/clf-nsi/rcmmn/hm-eng.html

[iii] Canadian Nuclear Safety Commission, http://www.cnsc-ccsn.gc.ca/eng/

[iv] Canada-Newfoundland and Labrador Offshore Petroleum Board, http://www.cnlopb.nl.ca/

[v] Canada-Nova Scotia Offshore Petroleum Board, http://www.cnsopb.ns.ca/

[vi] Northern Pipeline Agency, http://npa.gc.ca/home

[vii] Sustainable Development Technology Canada, http://www.sdtc.ca/index.php?page=home&hl=en_CA

[viii] *Department of Natural Resources Act*, http://laws-lois.justice.gc.ca/eng/acts/N-20.8/

[ix] *Forestry Act*, http://laws-lois.justice.gc.ca/eng/acts/F-30/

[x] *Resources and Technical Surveys Act*, http://laws-lois.justice.gc.ca/eng/acts/R-7/

xi. Whole-of-government framework, http://www.tbs-sct.gc.ca/ppg-cpr/frame-cadre-eng.aspx

xii. *2015–16 Main Estimates*, http://publiservice.tbs-sct.gc.ca/ems-sgd/esp-pbc/me-bpd-eng.asp

xiii. NRCan Publications and Reports, http://www.nrcan.gc.ca/publications/home/87

xiv Transfer Payment Program

xv 2011 is being used as a baseline because this is a 5-year target, reporting is for 2012-17, so the previous year (2011) was chosen as the baseline. This program began in FY 2012-13.

xvi 2011 is being used as a baseline because this is a 5-year target, reporting is for 2012-17, so the previous year (2011) was chosen as the baseline. This program began in FY 2012-13.

xvii 2011 is being used as a baseline because this is a 5-year target, reporting is for 2012-17, so the previous year (2011) was chosen as the baseline. This program began in FY 2012-13.

[xviii] NRCan web site, http://www.nrcan.gc.ca/plans-performance-reports/205

[xix] NRCan web site, http://www.nrcan.gc.ca/plans-performance-reports/205

xx. *Tax Expenditures and Evaluations* publication, http://www.fin.gc.ca/purl/taxexp-eng.asp